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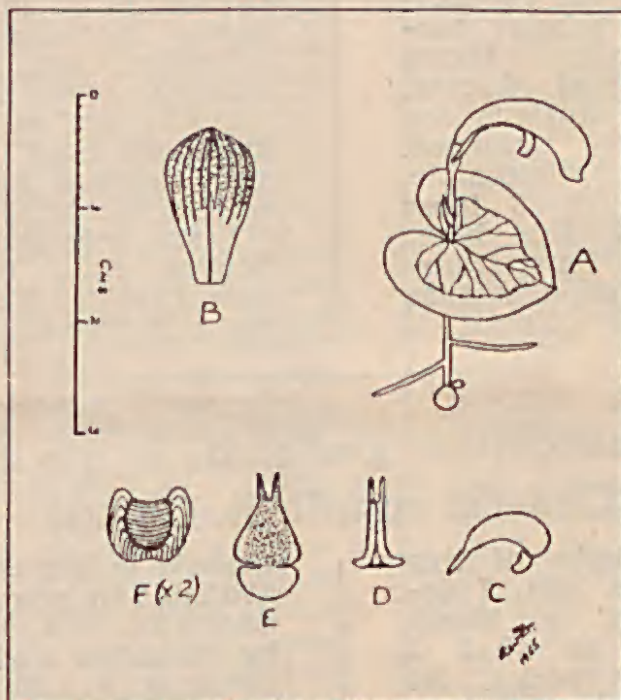
## A New Species Of *Corybas* (Orchidaceae) From The Atherton Tableland

By A. W. DOCKRILL

### *Corybas abellianus* sp. nov.

Herba terrestris. Folium cordatum, venis albis, c. 12 - 17 mm. longum, 12 - 16 mm. latum. Caulis supra folium c. 9 - 12 mm. longus; Bractea, acuminata, c. 3 mm. longa. Flos pro genere mediocris; in colore rubro-purpureus, medio lobo labelli albo. Sepalum dorsale falcatum, cuculatum, ad basim pellucidum et sensim angustatum. Sepala lateralia haud discernibilia, Petala linearia c. 1 mm. longa. Labellum trilo-

batum cum 2 auriculis basalibus; lobi laterales, marginibus pellucidis, in formam tubi conjuncti, anticus dilati et obtusi, sepalo dorsali conspicue breviores; lobus medius per c. 90° a tubo deflexus, et quam hic multo minor, sub-orbicularis, concavus, marginibus ad c. 1 mm. usque replicatus; auriculae prominentes, angustae, 1.5 - 2.5 mm. longae. Columna c. 2 mm. longa, c. 0.5 mm. lata. Anthera carinata. Stigma magnum, orbiculare. Dimensiones segmentorum in plano compres-



**CORYBAS ABELLIANUS** sp. nov.  
(To scale indicated)

- |                                |   |
|--------------------------------|---|
| A. Complete plant.             | E. Labellum flattened out.                                      |
| B. Dorsal sepal flattened out. | F. Mid-lobe of labellum flattened out to twice scale indicated. |
| C. Labellum from the side.     |   |
| D. Labellum from the top.      |   |

Spotting and Veining on B and E indicate extent of reddish purple colouring.



sorum sunt; sepalum dorsale obovatocuneatum, c. 10-15 mm. longum, c. 7.5 - 9.0 mm. latum; tubus labelli late cuneatus, obtusissimus, c. 4.5 - 6.5 mm. longus, c. 5 - 6 mm. latus; lobus medius labelli subreniformis, c. 2.5 - 3.5 mm.

North Queensland (Atherton Tableland), Atherton and Ravenshoe, 10 iv 1955. Leg. W.W. et T. Abell; Yungaburra and Ravenshoe 17 iv 1955. Leg. S. F. St. Cloud et J. H. Wilkie.

Holotype in the National Herbarium of New South Wales.

Terrestrial herb. Leaf cordate, veined with white (which does not show in dried specimens), about 12 to 17 mm. long by 12 to 16 mm. broad. Stem above the leaf about 9 to 12 mm. long, elongating to as much as 14 cms. or possibly more, after fertilisation of the ovary; bract acuminate, about 3 mm. long. Flower of medium size for the genus, appearing to be all reddish purple with a white mid-lobe of the labellum, but the basal third of the dorsal sepal transparent, except for the median line, so that the reddish-purple colour of the tubular portion of the labellum shows through. Dorsal sepal falcate, cucullate, narrowing towards the base, apex slightly upturned. Lateral sepals not discernible. Labellum consisting of 3 lobes and 2 auricles at the base; lateral lobes, which have transparent margins, forming a tube which surrounds the column, is

contained within the dorsal sepal, is dilated and very obtuse in front and is about half the length of the dorsal sepal; mid-lobe much smaller than the tubular portion and deflexed at an angle of about 90° from it and thereby protruding from the dorsal sepal, appearing suborbicular, concave, but the margins replicate for a depth of about 1 mm.; auricles prominent, narrow, 1.5 - 2.5 mm. long. Column about 2 mm. long by 0.5 mm. broad. Anther keeled on top. Stigma large, orbicular, segments when flattened; dorsal sepal obovate-cuneate, about 10 - 15 mm. long by 7.5 - 9.0 mm. broad; mid-lobe of labellum subreniform, about 2.5 - 3.5 mm. long by 4.0 - 5.5 mm. broad.

The species has affinities with some New Guinea members of the genus, but the small peculiar mid-lobe of the labellum readily distinguishes it from all other Australian species.

The collectors deserve much praise for finding this very distinctive species and it is the wish of Messrs. Wilkie and St. Cloud, as well as of myself, that it be named in honour of the first collectors. Mr. W. A. Abell has collected a number of new and rare orchids in several localities in Queensland and has generously donated many specimens to various herbaria.

I am indebted to Rev. B. B. Lowery, S. J. of Canisius College, Pymble, N.S.W., for reviewing this description.

## *Dendrobium glabrum* J. J. Sm. (*Cadetia ruppia* St. Cloud)

In the January issue of this journal, (Vol. 23 No. 110), I described and figured a North Queensland orchid as what I believed to be a new species. At the time of publication, I was unaware of J. J. Smith's description and figure of the New Guinea species, *Dendrobium glabrum*, in Bull. Dep. Ind. Neerl. 5:4 (1907), and Novo Guinea 8:LIV.1, Pl.20, Fig. 64 (1909), but my attention has since been drawn to this fact, and I believe the two to be conspecific. A comprehensive description of the genus

*Cadetia* in English or Latin is not available in any public library in Australia, and is urgently needed by botanists and collectors, particularly in North Queensland, where so much undescribed material exists. The position has recently been somewhat alleviated by Dockrill, who has published a small article, and the translation of Schlechter's key to the differences between the genera *Dendrobium* and *Cadetia* in the Australian Orchid Review, 20:80 (June, 1955).

S. F. St. Cloud.



# A New Species Of *Cymbidium* From North Queensland (Orchidaceae)

By S. F. St. CLOUD  
*Cymbidium leroyi* sp. nov.

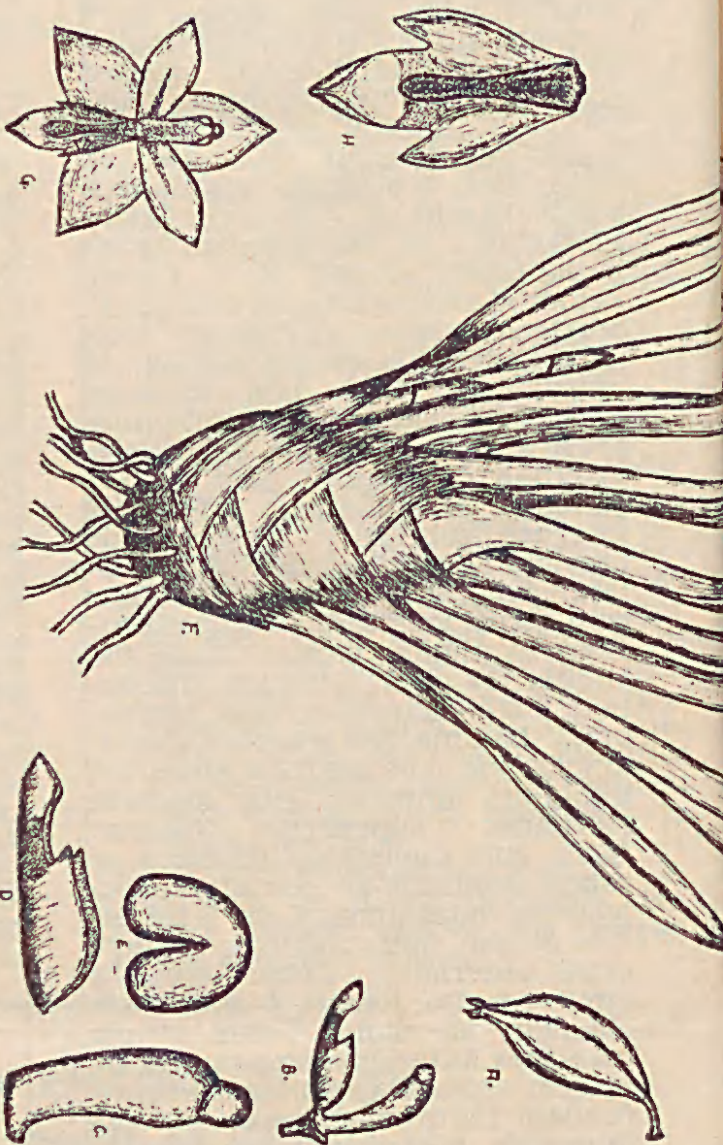
Pseudobulbi circiter 20 cm. longi, 5 - 6 cm. diam., ovati paulus plani curvatique. Folii 7-8, 90-100 cm. longi, 4 - 4 cm. lati, lineares cum apice acuto, infra carinati, supra canaliculati, multinerviati, ex viridi subnigri, tenuiter coriacei, paulus torquati curvatique. Racemi axillares semi-erecti robustissimi, 60 - 70 cm. longi, cum 3 squamis vaginalibus acutis basalibus, 6 - 10 cm. longis. Flores 40 - 50, expandentes, trans perianthum circiter 3 - 4 cm. Pedicelli semirigidi, 2.5 cm. longi, bracteae acutae circiter 3 mm. longae. Sepala omnia similia, 15 mm. longa, 7 mm. lata ut plana ficta lato-ovata autem margines prope apicem incurvati, superficies externae subfusci cum marginibus viridoflavis, superficies internae subflavi. Petala paulo breviora quam sepala, oblanceolata, superficies internae subflavi cum striis longitudinalibus rubentibus in dimidio basale. Labellum circiter 12 mm. longum, trilobatum infra convexum, non carinatum. Lamina, lobi laterales, dimidium basale lobi medialis rubentes. dimidium anterius lobi medialis flavidum; superficies inferior flava, cum duobus notationibus ex rubris subnigris ad conjunctionem lorum lateralium. Lobi laterales 2 - 3 mm. alti, angusti, oblongi, acuti anteriore. Lobus medialis circiter 6 mm. longus, 4 mm. latus, oblongus ut planus fictus, autem margines anteriores sursum versae apicem acutam cymbiformem profundam fissuram fingens. Discus humorem nectareum exsudans, a base dilatatus, in medio contractus, apicem ovatam angustam fingens ad medium lobum extendens. Columna 6 - 7 mm. longa, incurvata, flava cum anteriore infusionibus rubris. Anther rotundus, flavus. Pollinia 2, flava capsula seminalis ovoidalis, 4 - 5 cm. longa, 2.5 cm. diam.

Pseudobulbs about 20 cm. long, 5-6 cm. diameter, ovate slightly flattened and curved. Leaves 7-8, 90-100 cm. long, 4-5 cm. broad, linear with acute apex, keeled below and channelled above, multi-nerved, dark green, thinly

coriaceous, slightly twisted and curved. Racemes axillary semi erect very robust, 60-70 cm. long, with 3 basal acute sheathing scales 6-10 cm. long. Flowers 40-50, spreading, about 3-4 cm. across the perianth. Pedicels semi rigid, 2.5 cm. long, bracts acute, about 3 mm. long. Sepals all similar, 15 mm. long, 7 mm. broad, broad-ovate when flattened but margins near apex incurved, outer surfaces pale brown with greenish yellow margins, inner surfaces pale brown. Petals slightly shorter sepals, oblanceolate, inner surfaces pale yellow with reddish longitudinal stripes on the basal half. Labellum about 12 mm. long, trilobate, convex below, not keeled. Lamina, lateral lobes, and basal half of mid-lobe, a reddish colour, anterior half of mid-lobe, yellow, under surface yellow with 2 dark red markings at junction of lateral lobes. Lateral lobes 2-3 mm. high, narrow oblong, acute anteriorly. Mid-lobe about 6 mm. long, 4 mm. broad, oblong when flattened out, but the anterior margins upturned to form an acute cymbiform apex which is deeply cleft. Disc exuding a nectary fluid, dilated at the base, constricted at the middle and forming a narrow ovate apex which extends on to the mid-lobe. Column 6-7 mm. long, incurved, yellow with red infusions in front. Anther rounded, yellow. Pollinia, 2 yellow, seed capsule ovoid, 4-5 cm. long, 2.5 cm. diameter. Emmagen Creek, north of Cape Tribulation. North Queensland, Dec., 1954. Leg.-C. G. Le Roy, flowered in cultivation, Cairns, and type locality, January, 1955. This species is abundant as an epiphyte on *Melaleuca* sp., in swamp lands bordering Emmagen Creek. Holotype lodged in North Queensland Herbarium, Cairns.

I have pleasure in naming this species in honour of Mr. Claude Le Roy, who for many years has collected specimens in various parts of North Queensland, particularly Cape York Peninsula, and as a result of his labours, many botanical collections have been considerably enriched.

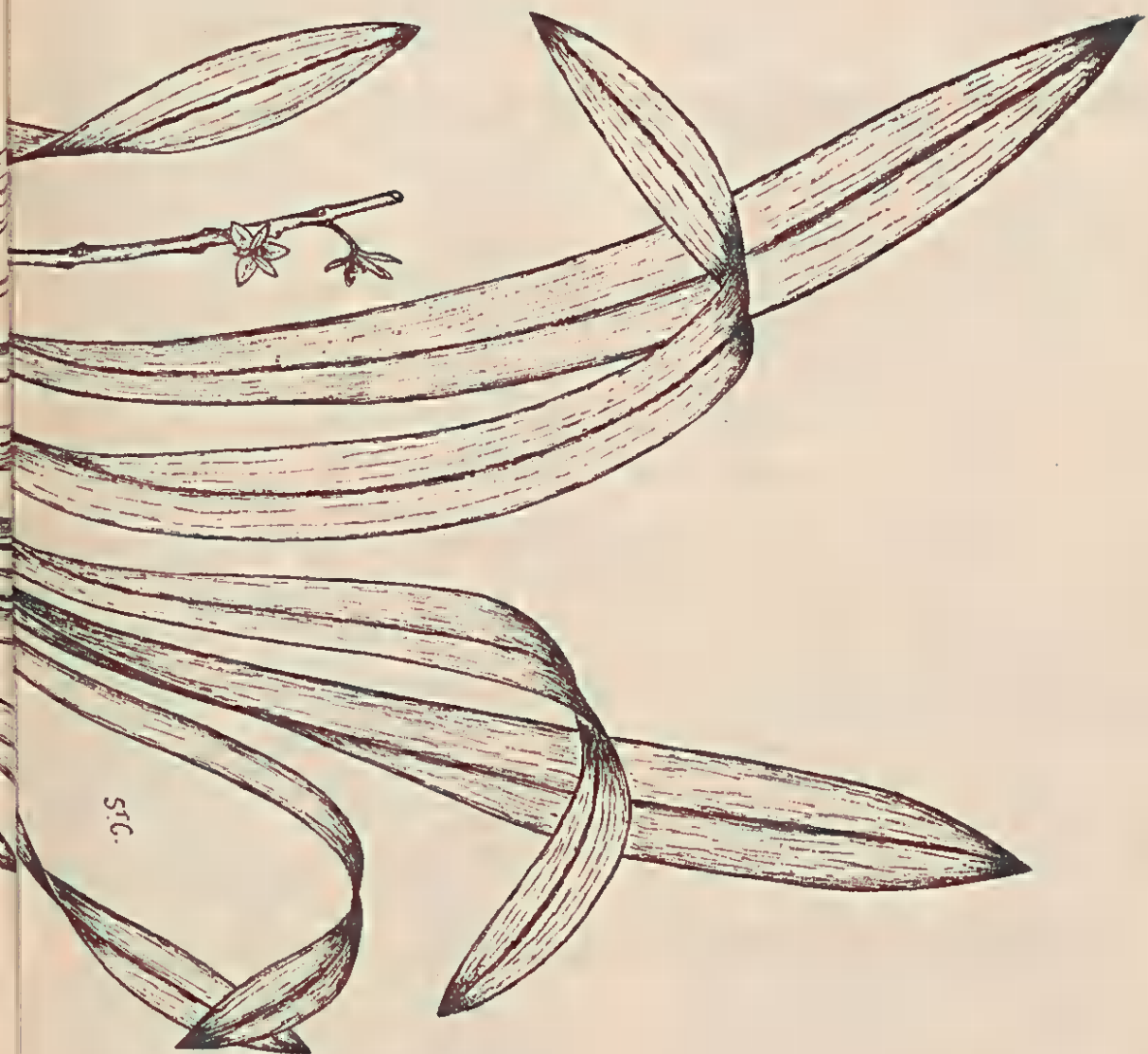




Key to Plate:—

- A. Seed Capsule.
- B. Column and labellum, side.
- C. Column, side.
- D. Labellum, side.
- E. Pollinia.
- F. Plant.
- G. Flower, labellum expanded.
- H. Labellum, front, lateral lobes flattened .





Sic.

## St. Andrew's Cross Spider, *Argiope aetherea*

By KEITH BARRY

The St. Andrew's Cross Spider, *Argiope aetherea*, is quite common in North Queensland; it builds its web in open places and not in dark corners, the web often being found hung between branches in trees, between high weeds and sometimes in doorways of buildings.

The St. Andrew's Cross Spider can easily be distinguished by the colouring of its abdomen, the upper surface of which is dark reddish brown, and is crossed by three pale yellow stripes. In addition, there are numerous small yellow spots spread over all parts of the abdomen. Two yellow stripes are likewise present on the under surface of the abdomen. The spinnerets are bright red in colour. The upper surface of the head and thorax are beset with numerous fine hairs. The reddish brown legs are provided with small black hairs.

The part of the web destined to catch the spider's prey is circular in shape, being suspended by several strands of silk which are much stronger than that used for the snares, for they must take the weight of the spider as well as the snare in addition to having to bear the strain associated with the struggles of any insect in process of capture. The stronger silk cannot be used for snaring as it is not sufficiently adhesive for this purpose.

The name of St. Andrew's Cross associated with the spider may be derived from either of two circumstances, namely from the building of a cross in the centre of the web, or from remaining in the web with the legs arranged in four pairs thus forming a cross.

Sometimes a cross may appear in the centre of the web, but it may not be present when this centre is first built, although it may be added later or not at all. As the spider grows it continues to build its web and cross larger in proportion to its size. Each of the two limbs of the cross may be up to four inches in length and a quarter of an inch in thickness. Sometimes the cross may vary in width and parts of

it may be curved. When the spider builds the cross it does so in a short time, taking but little care in the neatness of its construction. The web is not built quite perpendicular to the ground but always at a slight angle.

The spider remains in the centre of the web on the under side with its head directed downwards. The first and second legs on each side are held together forming the front pair, and the third and fourth legs are similarly held to form the hinder pair. If a cross is built on the web, each pair of legs will rest on an arm of the cross, the spider's body being thus at the centre of the cross. When looking at the web from certain angles, the spider is completely hidden by the cross, thus protecting it from the gaze of birds and wasps for these spiders are easy prey to such, being always in the centre of the web and in open spaces. On one occasion I opened a wasp's mud nest which contained eight St. Andrew's Cross spider victims.

When an insect is caught on the web, the spider moves towards it very quickly. Reaching the insect it proceeds to wrap it in silk, the insect being held underneath by the spider and spun around by the first, third and fourth pairs of legs at the same time letting out the silk by which the insect is wrapped. The second pair of legs is used to hold the spider in its web. After enshrouding the insect it is taken to the centre of the web to be eaten. If not devoured immediately it is left where it was caught whilst the spider returns to the centre. If the insect is sufficiently small such as a mosquito, it may be consumed at once without first being wrapped up.

When the spider is eating, the insect is held underneath, being turned around several times by the third pair of legs.

When alarmed, it stands high up on its legs, the abdomen raised high in the air with its head facing downward. Sometimes it will run to the other side



of the web or hide beneath a leaf. On some occasions I have seen a spider drop from its web to the ground by means of its silk. When danger has passed it will climb up this piece of silk and resume its usual position on the web. If the spider is continually annoyed, it will shift its web to another site.

As with many insects, the St. Andrew's Cross Spider will shed its skin when it grows too large for it. Before doing so, it attaches the old skin to the centre of the web with the aid of its legs. Hanging downward, the skin is split along the upper surface, and after much effort the spider removes its body from the old skin, attaching its spinnerets to the old skin by means of a piece of silk about an inch long. Very slowly the spider removes its legs from the old skin and appears to have much difficulty

in doing so. Having completely discarded the old skin, it hangs motionless for some time hanging from the small piece of silk attached to the old skin with its head and its legs hanging down as though resting after its effort to get out of the old skin. After a while it begins to move its legs slightly before resuming its normal position in the web. The old skin drops from the web.

The female St. Andrew's Cross Spider lays her eggs about three days after contact with the male. They are laid in a sac made of silk and hung on the outside of the web. The silk in the sac has a slight greenish colouring. I noticed the web of one such spider which had five egg sacs on the outside of the web. The male St. Andrew's Cross Spider is much smaller than the female and has an overall colouring of grey.

Winning essay for H. Flecker Natural History Medallion.

## Bird Notes

By CLEO SEATON

During the month of March, 1955, the Golden-headed Fantail Warbler, *Cysticola exilis* disappeared and has just returned (end of May) with its new coat. The crown is streaked to match the back and wings, giving it a much darker appearance.

During March and April, the garden was free of feeding finches. All one could see was these birds flying all day long with stems of grass six to eight inches long streaming from their beaks.

The Chestnut-breasted Finch, *Donacola castaneothorax* building amongst the blady grass, *Imperata cylindrica* var. *koenigii* was noted.

The Red-browed Finch, *Aegintha temporalis* attach their nests to forks in trees, some built in my neighbour's orange and lemon trees.

The Banded Finch, *Steganopleura bichenovii* used to fly across the gully, so I never came across any of their nests.

Since 21st May, the finches have been gradually returning to the lawn and bird baths with their young ones, and have now reached the stage of large flocks.

The Banded Finches seem to have only a pair, each exactly like the parent birds.

The Chestnut-breasted Finches have three young, these being brown with black chins and grey beaks.

The baby Red-browed Finches have no red brows as yet, although the crimson rump is very distinct. They also seem to collect in threes.

The breeding season at this time of the year does not correspond with that given by Cayley, perhaps owing to changes in the weather. Thus Cayley gives the seasons as follows:

Chestnut-breasted Finch, July to December and often as late as April.

Red-browed Finch, September to January.

Banded Finch, July to December.

15th May, 1955. From the same nest and I am sure the same parents of November, 1954, hatched another pair of sunbirds, which left the nest 30th May and are a happy foursome in the garden, the only difference to take place since my last description in

November last was the method of leaving the nest. When the parents took the first bird on to the fence, the remaining nestling tried to follow but ended fluttering to the ground. The female flew straight to the clothes line, but when she heard the chick's peeping on the ground, kept on calling to it, but the fledgeling kept on stretching its wings and falling over itself with its beak thrust out until it managed another flutter on to a broken banana leaf. The mother went to its rescue and all was well. (I have never seen these birds on the ground).

Neville Cayley's note concerning the breeding of the sunbird is given as September to January and February although consistent with the dates observed in the

earlier clutch is not so regarding the recent hatching.

My reason for believing that it is the same pair of sunbirds which are the parents in each case are the sustained interest in the nest, even when they did not occupy it. Whilst flying about the yard, one of them would observe another bird resting upon the clothes line, when immediately both were much concerned making quick work of removing it, even during the squally gusts of March. When prior to the laying of the second clutch of eggs the nest blew down, both birds set up a frantic chorus, which arrested our attention. With some string and a ladder the nest was made secure, so they had only a few touches to add before using it again.

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## CORRECTION

In the last number of this journal, Further Notes on Ooyurkas, it is stated that the Ooyurka illustrated represents that described as No. 13 in the issue of No. 108 of this publication. No. 13 should read No. 18.

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## Significance of the Caudal Appendage of *Acanthophis a. antarcticus*

By W. A. Lorking, F.Z.S.

*Acanthophis a. antarcticus* (Death Adder) is, possibly, one of our most unusual snakes. In general form this snake resembles the Old World vipers, but technically it has no affinities with the Viperidae.

The meaning of the generic name, *Acanthophis*, is spine-snake and Daudin must be credited with an excellent choice when he described the genus in 1803.

In the early part of this century many believed that the spine-like tail of the Death Adder was a poisonous sting; indeed, there are many today who still have their doubts as to the true purpose of this appendage and its importance to its owner. There are countless stories of the leaping ability of the Death Adder but, there have been no authentic instances of reliable observers witnessing such a phenomenon.

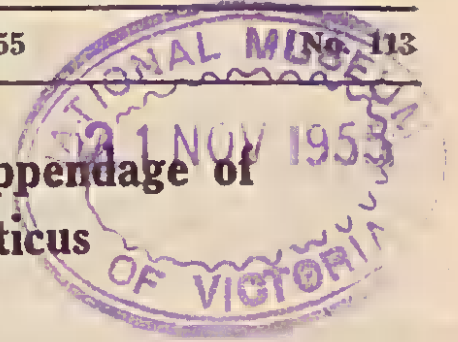
The reason, of course, is that no Death Adder can leap, at least not the fantastic distances claimed by many pseudonaturalists. It can, however, leave the ground as it strikes with lightning-like speed. The method of striking has much to do with the stories of the "stinging tail"; such a short, heavy bodied snake requires some counterbalance to assist a side strike: i.e., a strike toward an object directly to one side, the tail, or more correctly the whole of the posterior portion of the body, swings swiftly toward the object in conjunction with the anterior portion. It can be seen that an inexperienced observer

could confuse the issue by assuming that the snake was stinging and biting at the same time.

This is only one explanation of the many fallacious stories surrounding the purpose of the spine-tail.

I have in my collection six Death Adders. The largest, 28 inches, prefers mice and rats, the remainder of the group will take only lizards. If a lizard is close, but not within striking distance, the Adder, if in grass, lifts the tail to a vertical position and gently wriggles it (In a clear position unobstructed by grass, the tail is wriggled horizontally on the ground). If the lizard catches sight of such movement it is doomed, for once within striking distance of its prey the Death Adder very rarely misjudges its aim. Should the lizard be two or three feet away the tail is moved much more rapidly, though at no time is the motion violent. Possibly the snake becomes anxious about its prospects of a meal and endeavours to create enough movement to draw the lizard within range of the deadly fangs. This cunning performance is not always successful, for sometimes a lizard may not catch sight of the worm-like object wriggling, but, should it do so the Death Adder is assured of an easy victim.

The preceding observations were not made on one particular specimen but many, and it would appear that the use of the tail as a lure for lizards serves a more useful purpose than an auxiliary poisonous apparatus.





## \* Why Not Grow Native Plants ?

By T. R. N. LOTHIAN, Director, Botanic Garden, Adelaide  
13th January, 1955

Ever since the day Banks and Solander landed on Botany Cove and first saw our remarkable vegetation, there has been a keen desire by all who grow good plants, especially in England, on the Continent and in America, to add examples of the Australian flora to their collections. So great was the interest aroused when our plants were introduced that they dislodged as favourites those remarkable South African plants such as *Ericas*, *Proteas* and *Leucospermums*. In their place people were anxious to grow *Eucalypts*, *Melaleucas*, *Callistemon*, *Grevilleas*, *Hakeas*, *Wattles* or *Acacias* and many others of the curious and brilliantly flowered Australian plants.

Gradually gardeners in Australia have learned that many of our Australian plants not only rival the many exotic species imported from various parts of the world but grow more easily and luxuriantly. They have learned, too, much to their astonishment, that the statement that Australian plants flower for short periods only is quite incorrect. But in spite of their beauty, their ease of culture and their longevity, they are not yet universally cultivated. This is a pity because those who do not grow our Australian plants grow from their gardens a most distinctive and interesting group of trees and shrubs.

It is likely that one of the objections against our Australian plants is the tremendous amount of misinformation regarding their requirements. How often have we been told that one must not apply manures or fertilisers of any kind to our Australian plants, that if we do they will die. Of course you can give manures and fertilisers to any of our Australian plants, and if these are applied sensibly and in moderation our plants will grow better and flower in greater abundance. In other words let us manure our Australian plants in

exactly the same way as we apply manures and fertilisers to our ordinary garden plants. Another false idea is that we must select the bleakest, the poorest and the least useful piece of ground to grow our native trees and shrubs. This presumably is based on the assumption (unfortunately still repeated) that Australia is a vast dry land and that the plants which come from such a country require such conditions.

It is true that a greater portion of Australia has a low rainfall. But it is not true that the plants which come from such a country require such conditions.

It is true that a greater portion of Australia has a low rainfall. But it is not true that the soils are poor, as anyone can bear witness who has seen the rapid growth which takes place following rain in these dry areas. Nor is it true that all of Australia is like this. Most of the eastern areas as far inland as the Great Dividing Range enjoy a high rainfall, and plants coming from these districts must be given plenty of water and good soil. Therefore if we are growing plants which are native to the eastern seaboard they should be treated in exactly the same way as we treat garden plants received from the higher rainfall and temperate regions in other parts of the world.

How many times have we heard that Australian plants resent root disturbance? This is one of the few items of advice ever given which is true so far as Australian plants are concerned.

Having dealt with some of the erroneous beliefs in regard to the cultivation of Australian plants, let us now consider what we should do to cultivate them successfully. Plants from the dry and sandy areas of this Continent should, if possible, be given a position which is better drained than others, and which is out in

the open, for plants from desert regions must never be placed under trees or shrubs. Species of *Melaleucas* or Honey Myrtles, some of the smaller growing *Acacias* or *Wattles*, the Desert Rose, *Hakeas*, *Grevilleas* and even Sturt's Desert Pea will survive in such places. Examples of the incomparable flora of Western Australia, the Grampians in Victoria and the sandstone regions in New South Wales, all will enjoy such conditions.

But the vast majority of Australian plants which are suitable to grow in the home garden will thrive perfectly well in what is normally described as "average garden soi." Soil preparation will include the removal of perennial weeds and make certain that it is well drained for very few plants, no matter their country of origin, enjoy wet or boggy conditions. After the perennial weeds have been removed the actual positions of the shrubs are decided on and the soil loosened with a fork to a depth of 6-9" and perhaps a foot or so square in area. That is all that is necessary. Planting can then take place.

Possibly one of the greatest deterrents against the cultivation of our Australian plants has been what may appear to be their premature dying. This is caused by planting pot-bound seedlings, two or even three years old with their roots coiled in a tight ball. Young plants only, preferably under twelve months old, should be planted. It does not matter if they are only 4" or 5" high, they will grow rapidly, establish quickly and flower at an early date. The technique for planting is simple. A hole large enough to accommodate adequately the roots should be made in the loosened area. A small handful of superphosphate should be mixed with the soil and the young plant set at a slightly deeper level than it is in the pot. The soil is then replaced around the roots and firmed. If the soil is moist and conditions are cool watering need not be carried out, but this is usually desirable. Plant in the early autumn or, in the case of frost tender species, after the danger of frosts is over.

Our Australian plants can be used for numerous purposes. Those shrubs which grow from 3 - 5, 6 or even to 10 ft. high are ideal for shrubberies. There are a number of genera, and those with brilliant flowers and easy to grow, include *Banksias*, *Beaufortias*, *Callistemon* or Bottle Brushes and *Melaleucas* or Honey Myrtles. A genus rarely cultivated is *Calothamnus* or Net Bush. These, with their short pine-like foliage and brilliant red flowers, are most attractive and make ideal tub plants. The Geraldton Wax is well known. *Grevilleas* and *Hakeas* are also often planted but a related genus, *Dryandra*, grows equally well and the flowers are even more brilliant. *Isopogons* or Cone Bush, *Kunzeas*, various forms of Tea Tree and *Prostanthera* or Mint Bushes should all be included in any garden collection of shrubs.

Amongst our climbing plants *Hardenbergia* or the Coral Pea is probably the best known. The Wonga Vine and the Bower-of-Beauty, two species closely related to *Tecomas*, make magnificent displays.

It is a pity that more of our native trees, especially the small growing species are not more commonly planted in the home garden. The taller growing species make wonderful park trees. There are a number of ornamental *Eucalypts*, rarely exceeding 10 ft. with red yellow or cream coloured flowers which are suitable as specimens or to plant at the back of the shrubbery. The variegated Rusty Fig makes a colourful specimen with its yellow and green leaves. The taller growing Honey Myrtles or *Melaleucas*, the Fire Wheel Tree and the *Eugenias* or Brush Cherries are all worthy of cultivation.

To see these plants and to make a proper selection visit your Botanic Gardens and public parks where you will see how well and how readily these plants grow. In fact you will find that our native plants are not only extremely interesting, easy to grow and lend themselves to garden culture, but the quantity of flowers produced will make them among the most outstanding plants of your garden.



## Sunbird Nestlings' First Descent from Nest

By Cleo Seaton

Mr. A. H. Chisholm makes the following inquiry regarding the first descent from the nest of the fledgelings of the sunbird as described in my article in the N.Q. Naturalist of May last.

"When you say that in the first flight from the nest the bird's actions 'gave the impression' that the fledgling had its first journey on its mother's back, do you mean that that was merely an impression, or did one or both parents actually carry the babies? There have been, as perhaps you know, a number of records of birds carrying their young (some of which I discussed in my Bird Wonders of Australia), but I had not previously heard of anything of the kind being attributed to the Sunbirds."

To the above I replied:—

The birds do not carry the chicks. Hen and chick leave nest simultaneously, the hen probably as a guide, and the cock as a protection from other birds such as Friar Birds, Drongos, Kingfishers, Wagtails and Dusky

honeyeaters, the latter being a very nasty customer. I might mention they had things much easier in May and took their time, with the result, the second chick was so keen to leave the nest with the rest of the family that it fluttered out and down to the ground on its own, and was encouraged by the hen calling to fly up on to a banana leaf. At this time of the year they did not have to take to the gully as the sugar cane was still standing and arrowing (flowering), so gave food and shelter at the same time, and with so much fruit berries and blossoms in the gully to keep the large birds happy, we can enjoy the company of the grass birds, etc.

Mr. W. A. Collins tells me his sunbirds just sit a couple of yards away from the nest on the tree, calling and flying up to the nest and the young ones, after several attempts, make the flight on the tree themselves, whereas mine have to travel 30 feet on a slope, as it seems that the parents just work out the best procedure.

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## BIRD NOTES

By Cleo Seaton

In answer to queries concerning my article on Sunbirds at Home in the May issue of this journal, the following notes are submitted.

It would be only guess work to say that it is a habit to start building and then neglect to finish the same. My neighbour had the same experience when after the nest had reached the foundation stage the birds left, but unfortunately the birds did not return and the nest rotted away, whereas the birds, in my case, after successfully hatching her first brood, produced another pair of chicks in May, although in a badly battered nest.

My reason for believing that the same parents occupied the nest on the second occasion is that they showed the same interest in the nest since the hatching of the November chicks, and that during the cyclonic weather, after much wind and rain, we heard a commotion from the birds sitting on the clothes line and upon investigation found their nest lying on the ground. Mr. Seaton bound it with string and replaced it minus the pennant, and once more it received periodical pokes. No effort was made to restore the pennant, and on May 15, 1955, another pair of



chicks was born, leaving the nest on May 30, 1955.

I have never seen their nests in the bush around these parts, and have come to the conclusion that the green tree ants, *Oecophylla virescens* are too numerous. Mr. W. A. Collins up on the hill drew my attention to this when he told me how his sunbirds made such a fuss over the nest and he knew that they had just hatched chicks. He investigated to find the new born almost reduced to skeletons by green ants. Unknown to him, a branch from

a tree had grown high enough to touch the wire from which the nest was suspended.

In reference to the brooding, this would be no longer than ten days. When I wrote (all this took place on November 20) I meant the chicks were hatched ten days after the removal of the nest from one site to the other.

**FURTHER NOTES:** The Sunbird took to sleeping in her nest from April 23, 1955, leaving it vacant all day. On April 30 she commenced to occupy it day and night (it is very hot during mid-afternoon for her).

## The North Queensland Naturalists' Club ANNUAL REPORT FOR YEAR, 1954-1955

By Alfred A. Read, President

It is with pleasure that I again submit the Annual Report of activities of the club for the year, 1954-55. The year has been a successful one with all officers of the club carrying out their duties in a satisfactory manner.

The main event for the commencement of the new year was the presentation of the H. Flecker Natural History Medallion which was awarded to Miss Roslyn Warren for her observations of Green Hill, and was presented by the doctor. This award carried a cash prize of £2/2/-. To further interest amongst competitors, Dr. Flecker introduced the ideas of competitors selecting their own special study for observation in any branch of natural history.

Before the close of the year the club lost one of its foundation members in the person of Mr. Arthur J. Moran, who was well known for his study of bird life. Many of his valuable books on subjects of natural history were donated to the club by his widow.

Sorrow also came to another of our esteemed members, Mr. George Atkinson, in the loss of his son.

The Christmas Party was held at the residence of Mr. and Mrs. Read and all members enjoyed a pleasant evening and advantage

birthday greetings to Dr. Flecker, was taken of the night to express who was celebrating his 70th birthday, the club members presenting him with a pen and pencil set to mark the occasion, and to wish him good health to carry on his wonderful work in the interests of Natural History.

During the April meeting a film evening provided by courtesy of the Adult Education Department was shown to members and visitors at the School of Arts, dealing with subjects of Natural History. This was largely attended and much appreciated by all.

Main discussion during May was for the safeguard of the future existence of the North Queensland Herbarium now directed by the club, and which has been the result of many years' work by the doctor. A scheme for the formation of a trust to control the Herbarium is now in progress.

Another film evening in June was given by Mr. A. H. Clarke, assisted by Mr. M. Wilson on their spear fishing experiences on the Great Barrier Reef and again gave much pleasure to all.

July again brought very keen competition for the H. Flecker Natural History Medallion and again Keith Barry was the successful competitor, Valda Lawson

gaining second and Kay Hungerford third prizes.

Dr. P. O. Flecker and Mr. William Hosmer, both members of the club, were appointed Honorary Rangers by the Department of Agriculture and Stock for the protection of flora and fauna.

To advertise the monthly meetings notice boards have been placed at "Tropical Attractions" and at the entrance to the School of Arts.

Many new members have again been added to the list published in the N.Q. Naturalist and welcomes extended to numerous visitors to our city who have come along to the meetings. Club outings were abandoned mainly owing to the long continued wet season.

Special mention is due to Mr. S. F. St. Cloud for his continued work on the description and illustrations of new orchids which have been contributed to the journal.

I also desire to express my thanks to all officers and members of the club for their full co-operation and interest manifested throughout the year and for the many and varied specimens brought along at each meeting by individual members for discussion. I take this opportunity to express my gratitude for the good feeling and friendliness at each meeting and wish the club continued success in its now long history.

## PROPOSED BOTANICAL SOCIETY

(By E. Pollock, Parkes, N.S.W.)

Let us acclaim, with unstinted admiration, the ingenious and novel manner in which the South African National Botanic Gardens, at Kirstenbosch and Worcester, Cape Province, distribute seeds of their indigenous flora and, at the same time, raise funds to maintain those institutions at a high level of efficiency.

How is that effected? By means of their Botanical Society of South Africa, an organisation whose membership is not the prerogative of a privileged few but available to all naturalists on payment of an annual subscription. And that entitles each member to receive each year, according to the amount subscribed, seeds of 15, 20, 25 or 30 of almost 500 species of flora represented in those National Botanic Gardens.

A commendable scheme? It certainly does overcome the objectionable alternative, here in Australia, of having to write begging letters to Curators and/or Directors of Botanic Gardens beseeching them to send you, or me, a pinch of seed of a plant in which one is particularly interested. It also spares us the undoubted humiliation of being told, sometimes very curtly, that the seeds of species in "their" collec-

tions may be had on an exchange basis, and are NOT for sale to the public.

Readers and sympathisers. Have you ever had such an experience? Have you ever been rebuffed in that fashion and felt as though you had literally prostrated yourself at the feet of the mighty, to ask a favour, and been well-rebuffed for your pains? Well, we deserve it. It is a fitting reward for our servility, our meekness, our respect for the status quo, our poverty of constructive ideas, and our apathy in not pressing for a better deal.

The time has come to ask two awkward questions. (1) What becomes of the annual harvest of seeds of plants in botanic gardens maintained at great public expense? (2) How can the amateur naturalist, with nothing to offer, get anything from botanic gardens who exchange but will not sell seeds? That is the unsolved botanical riddle of this atomic age. Ludicrous and absurd too, as the policy puts the floral treasures of the nation, that have been accumulated by immense social effort since the colonisation of Australia, beyond reach of the common man.



Is there a remedy, for the existing state of unsatisfactory affairs, that would ensure real botanical progress in the Commonwealth? Of course there is. We must emulate the example of our Afrikander friends by the immediate establishment, in New South Wales, Victoria and South Australia especially, of botanical societies having the same objectives as the Botanical Society of South Africa.

Then, on payment of an annual membership fee, any person, rich or poor but anxious to grow trees, shrubs, etc., will become entitled to so many packets of seeds, of his own selection, from the Botanic Gardens in Sydney, Melbourne and Adelaide.

The writer suggests that the funds raised by the adoption of such a scheme be safeguarded against seizure by rapacious political parties for consolidated revenue, and that any surplus be used to finance rambles or excursions into bush, scrub and jungle by newly-graduated botanists in charge of an older expert, for the collection of seed and plant material of species not represented in those botanic gardens, and to obtain the like species new to science. (Young active men they must be, as more experienced botanists of the chair, by reason of long, sedentary habit, are unlikely to be in fit physical condition to survive the hardships of exploratory work.)

Anyway, what does the scheme call for? A complete break with tradition, by the organisation of each botanic garden on a proper business-like basis. This would necessitate (1) the numbering of all plants in the collection, (2) the erection of a kiosk, gaudily painted in striped colours easily recognised by visitors to those gardens, and a competent staff therein, with cash register, typewriter, membership application forms, etc., (3) plenty of notices, posted in conspicuous positions throughout the gardens, inviting the public to membership of, say, "The Botanical Society of N.S.W."—and a supply of seeds according to personal choice. (If only for the Shakespearean reason—in "King Lear"—that "A thing in motion sooner catches the eye than what not stirs," these notices should be operated accordingly by

mechanical means, and illuminated on dull days to advantage). Suitable notices for popular digest would be as follows (a) "Dear Visitor, would you like seeds of some of the trees and/or shrubs in this Botanic Garden? Please call at the striped kiosk in these grounds." (b) "Visitors requiring seeds of species growing in these gardens are requested to note the numbers of their choice, and then call at the kiosk (painted in red and white stripes) hereabouts." And when they do so, the staff put over a good line of sales talk, explain the scheme in detail, sign them up for membership and seed supply, and collect the cash. What could be easier, or simpler?

There should also be a team of energetic canvassers, on a commission basis selling membership in the new botanical society going from door to door throughout the suburbs of capital cities, and in every country town. That would popularise the cultivation of native flora as never before, and provide funds to expand the activities of botanic gardens independently of any grants by parsimonious State governments.

Would the scheme add to the worry and responsibility of the busy, harassed and often overworked Chief Botanist, or Director? Not at all. He could delegate authority to a competent person in charge of seed collection and distribution, and leave all problems of finance to an expert in that province alone. Let's have it, without delay. All that is required is the will and determination to sweep away the conservatism of long-established institutions fearful of change and new innovations, the appointment of salesmen with bright ideas, and some initial advertising to bring the scheme into being. Once in vogue, the scheme would sell itself not only to citizens in every State but to botanical enthusiasts throughout the world. Well publicised in the United States, the idea would be instrumental in bringing a steady flow of almighty dollars into the coffers of Australian botanic gardens, to finance more seed-collecting expeditions into the remote parts of the continent, by young botanists straight from the University. That would be the most valuable and practical training of their lives; but

it is suggested that they be accompanied by experienced bushmen lest they, like Leichhardt, fade out of the picture altogether.

The above is the rough outline of a practicable scheme for the advancement of botanical science. It is hoped that the enthusiasts might be induced to support such a plan.

## The North Queensland Naturalists' Club

Meets at School of Arts, Cairns, usually on second Tuesday of month at 8 p.m.

### MEETINGS

**April 12, 1955:** Natural History films exhibited by Mr. Bitmead of Adult Education Department of developing embryo of chick, anatomy of frog, the spider and pond life, with sound tracks. A film on snake bite and its treatment was also shown. Attendance 15 members and 10 visitors.

**May 10, 1955:** Resolved to support move by Cairns Horticultural Society to expand the development of the Botanical Reserve at Edge Hill into Botanical Gardens worthy of the City. Attendance 11.

**June 14, 1955:** Moving and still pictures taken by Messrs. A. H. Clarke and M. Wilson in their spear fishing on the Great Barrier Reef. Attendance 12 members and about 28 visitors.

**July 12, 1955:** Announcement made that owing to the large number of entries, it was decided to award in addition to the Natural History Medallion to Keith Barry, second prize to Valda Lawson of St. Monica's School, and third prize to Kay Hungerford of Edmonton.

**August 9, 1955:** Attendance 10 members, three Victorian visitors.

#### ELECTION OF MEMBERS

May 10: Mr. F. L. Basey, 17 Jones St., Cairns. **June 14:** Messrs. John Milton Thorne Nankivell, West Cairns; Milton Undy, Coen; Francis John Armbrust, Endeavour River, Cooktown. **July 12, 1955:** Messrs. Edward Pollock, Moolong Rd., Parkes, N.S.W.; Geo. Wm. Taylor, 354 Draper St., Cairns.

## PUBLICATIONS BY N.Q. NATURALISTS' CLUB

1. CHECK LIST OF NORTH QUEENSLAND ORCHIDS .. PRICE 1/-
2. MARKETABLE FISH OF THE CAIRNS AREA .. .. PRICE 1/-
3. CHECK LIST OF NORTH QUEENSLAND FERNS .. .. PRICE 1/-
4. EDIBLE PLANTS IN NORTH QUEENSLAND .. .. PRICE 2/-
5. LIST OF BIRDS OCCURRING IN NTH. QUEENSLAND .. PRICE 2/-
6. LIST OF AUSTRALIAN DRYOPIDAE .. .. .. PRICE 6d.
7. CHECK LIST OF NORTH QUEENSLAND ORCHIDS .. PRICE 2/6

(Second Edition)



# The North Queensland Naturalist

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## *Rhynchoedura ornata* (Gekkonidae) and *Ablepharus kinghorni* (Scincidae) in S.W. Queensland

By William Hosmer, F.Z.S.

This paper places on record *Rhynchoedura ornata* Gunther and *Ablepharus kinghorni* Copland purporting to be new to the herpetofauna of Queensland.

The following new State records form part of a small collection of reptiles and amphibians taken in and about St. George, S.W. Queensland between October, 1954, and December, 1955. The entire collection will be treated fully in a future paper. Pending the publication of this, the author believes it advisable to release the following data for the benefit of other workers. The specimen numbers refer to the author's private collection.

### **RHYNCHOEDURA ORNATA** Gunther.

*Rhynchoedura ornata* Gunther, 1867, Ann. Mag. Nat. Hist., Vol. 20 (3) p. 50. Type locality, Nicol Bay, W.A.; Lonnberg and Andersson, 1913, Svensk. Akad. Handl., Vol. 52 (3) p. 4; Waite, 1929, Rept. Amph. S. Aust., p. 71; Loveridge, 1934, Bull. Mus. Comp. Zool. Harvard, Vol. 77 (6) p. 297.

No 335, St. George, S.W.Q., 24 x 1954. Leg. Wm. Hosmer.

No. 537, St. George, S.W.Q., 24 x 1955. Leg. G. Crotty.

Head moderate, wedge-shaped anteriorly, snout acutely pointed. Rostral convex, small but prominent and beak-like, mesially cleft. Nostril between several nasals, the largest anteriorly making a suture with the rostral. The distance from the anterior corner of the eye to the end of the snout equals  $1\frac{1}{2}$  times the orbital diameter. Loreal region concave, ear opening small, oval, oblique, about one-fifth of the orbital di-

ameter. Supralabials small, 17 to 19. Limbs slender, rather delicate. Digits cylindrical, slightly compressed, with simple claws, without lamellae, covered with small granular scales. Head and body covered with fine granules, a pair of enlarged preanal scales, each with a small pore-like indentation. Postanal swelling with enlarged imbricated scales. Tail rounded, slender, moderately tapered, with verticillated series of slightly enlarged scales.

Colour in life, reddish-brown dorsally, with dark brown marblings throughout, large white spots irregularly scattered over body, on the tail these spots form a more regular series, and are bordered with dark brown. Undersides immaculate.

Largest example (45 plus 36) mm.

Specimen No. 335 was taken in the late afternoon ensconced beneath a log on the S.W. corner of St. George airport, where tall grass and trees occur. Specimen No. 537 was found on the ground about half a mile to the east of the town at 7.30 p.m. close to a street light feeding on insects.

### **ABLEPHARUS KINGHORN** Copland.

*Ablepharus kinghorni* Copland, 1947, Proc. Linn. Soc. N. S. W., Vol. 71 (5-6), pp. 282-286, figs. 1-3, pl. 18. Type locality, Darling River, N.S.W.

No. 566. Dunkerry Station, via Thallon, S.W.Q., 4 x 1955. Leg. R. D. Roos.

Scales at midbody in 22 rows. Lamellae beneath the fourth toe 17. The white dorsal stripes fade at the base of the tail which in life was orange above, the ventral

surface immaculate white. Only 3 instead of 4 supraoculars occur on the right side, due to fusion of the first and second, whilst the first supraciliary on that side is enlarged and forms a short suture with the frontal. In all

other respects the specimen is in entire agreement with Copland's description.

Thanks are due to Mr. G. Mack, Director of the Queensland Museum, for checking the museum records in connection with the above species.

## Some Co-type Specimens in the North Queensland Herbarium, Cairns

By George W. Taylor, B.A., Dip.Ed.

New species described by C. T. White

### COMPOSITAE.

#### *Calotis squamigera* sp. nov.

N.S.W., Macintyre River, near Queensland River at Goondiwindi: C. T. White 12621 (Type: flg. and ftg. capitula) Sept. 1944. Q'ld, Maranoa District: Bunge-worgorai, near Roma, very common on sandy soil, C. T. White 9532 in part (ftg. capitula) Oct. 1933, a common weed, local name "Bindi-eye."

Warrego District: Murweh, R. Cameron.

North Kennedy District: Charters Towers, weed on race-course, Dr. H. Flecker (Ftg. heads), 6th August, 1942 (N.Q. Nat. Club 7925).

Burke District, Maxwellton, on grassland, altit. abt. 550 ft., S. T. Blake 12650 (flg. heads), August, 1936. (Shortly creeping, ascending or erect, up to 4 ins., green, flowers yellowish.)

Moreton District: Eight Mile Plains near Brisbane, weed of cultivation introduced with sheep manure, C. T. White (flg. and young ftg. heads), 26th October, 1930.

Ref. C. T. WHITE. Contributions to the Queensland Flora No. 9, Proc. Roy. Soc. Q'ld., Vol. LVII, 21/4/47.

### CUNONIACEAE.

#### *Ceratopetalum corymbosum* sp. nov.

Thornton Peak, alt. 4500 ft., Dr. H. Flecker (flowers), 14th December, 1940. N.Q. Nat. Club 7108.

Ref. C. T. WHITE. Contributions to the Queensland Flora No. 7, Proc. Roy. Soc. Q'ld., Vol. LIII, 23/2/42.

### EUPHORBIACEAE.

#### *Baloghia parviflora* sp. nov.

Cook District: Bartle Frere, alt. 700 m. (common in foothill rain-forests). S. Kajewski 1251 (flowers), 1st October, 1929. (Small tree up to 20 m., flowers white, stamens cream.) Mount Spurgeon, alt. ca. 3000 ft. (common in rain forest). C. T. White 10546 (Type: flowering specimens), Sept. 1936. Medium sized tree, flowers white.

Mount Lewis, T. Carr, 30th Jan., 1941 (N.Q. Nat. Club 7883).

Ref. C. T. WHITE. Contributions to the Queensland Flora No. 7. Proc. Roy. Soc. Q'ld., Vol. LIII, 23/2/42.

### GOODENIACEAE.

#### *Goodenia subauriculata* sp. nov.

Northern Territory: Pine Creek, R. Tate. (Type: Nat. Herb., Melbourne.)

Queensland. Cook District: Iron Range, Dr. H. Flecker (Fls.), April, 1944. (Herb. fls. yellow), N.Q. Nat. Club 8565.

Ref. C. T. WHITE. Contributions to Queensland Flora, No. 9, Proc. Roy. Soc. Q'ld., Vol. LVII, 31/4/1947.



## HIPPOCRATEACEAE.

Roy. Soc. Q'ld., Vol. LIII,  
23/2/42.*Salacicratea disepala* sp. nov.

Cook District: Yarrabah, Rev. N. Michael (old flowers and very immature fruits).  
Murray River: Dr. H. Flecker (ex Herb. N.Q. Nat. Club 7826).  
Etty Bay rain-forest regrowth, C. T. White 11751 (immature fruits). Dec. 1941 (climber).  
Boonjie, near Malanda, alt. 2400 ft., common in rain forest, S. T. Blake 15188 (Type: flowers), August, 1943. (Slender, woody twiner, the lateral branches often twining tendril-like at base—stem about 2 cm. diam. with grey, nearly smooth bark, deep green beneath the surface; wood white; leaves green, paler beneath; flowers greenish white, stamens at first erect, then reflexed.  
Ref. C. T. WHITE. Contributions to the Queensland Flora, No. 7, Proc. Roy. Soc. Q'ld., Vol. LV, 14/8/1944.

## LOGANIACEAE.

*Gaertnera australiana* sp. nov.

Cook District: Utchee Creek in "jungle," Dr. H. Flecker (type: flowers), 27th Nov. 1938. N.Q. Nat. Club 5313.  
Danbulla in rain-forest, Dr. H. Flecker (old flowers), 1st Jan. 1941. N.Q. Nat. Club 7174.  
Bellenden Ker, C. T. White 1277 (fruits), March, 1922.  
Ref. C. T. WHITE. Contributions to the Queensland Flora, No. 7, Proc. Roy. Soc. Q'ld., Vol. LIII, 23/2/42.

## MELIACEAE.

*Amoora ferruginea* sp. nov.

Cook District: Foothills of Thornton Peak (Mt. Alexander), Brass and C. T. White 262. alt. 250 m., rain-forest, L.J. (Type flowers), 20th Sept., 1937 (tree 10 m. high).  
Fishery Falls, H. Flecker (flowers), 16th August, 1936. (Herb. N.Q. Nat. Club 2141.)  
Mount Lewis, T. Carr (fruits), 1st Feb., 1941. N.Q. Nat. Club 7272.  
Ref. Contributions to the Queensland Flora, No. 7, Proc.

## MYRTACEAE.

*Myrtus pubiflora* sp. nov.

Strathdiekie, near Proserpine, Rev. N. Michael 1476 (type: flowering specimens), 1497 (ftg. specimens).  
Strathdiekie North: Ken Macpherson 81 (flowering specimen), Aug., 1936. Mr. Macpherson's specimens received from N.Q. Nat. Club under 2742. Ref. Contributions to the Queensland Flora, No. 6, Proc. Roy. Soc. Q'ld., Vol. L, 8/6/1939.

*Myrtus macrocarpa* sp. nov.

Cook District—between Josephine and Russell Creeks, Dr. H. Flecker (Type: N.Q. Nat. Club 4986), small tree 40 ft., flowers white.  
Russell Heads, F. R. Morris, N.Q. Nat. Club 6419, fruits, 5th Nov., 1939 (tree 40ft., fruit and branches ruddy).  
Ref. Contributions to the Queensland Flora, No. 7, Proc. Roy. Soc. Q'ld., Vol. LIII, 23/2/1942.

*Xanthostemon brachyandrus* sp. nov.

Cook District: Mossman Gorge, Dr. H. Flecker (bud specimen), 3rd Nov., 1934, N.Q. Nat. Club 292.  
Harvey Creek, F. R. Morris (Type: flowering specimen, 19th January, 1939. Tree 40 ft., flowers white, fragrant).  
Ref. C. T. WHITE. Contributions to the Queensland Flora, No. 7, 23/2/1942.

## RUBIACEAE.

*Hodgkinsonia frutescens* sp. nov.

Cook District: Atherton, A. L. Merrottsy (flowering Nov. and Dec.), Yungaburra in rain-forest, Dr. H. Flecker (flowers), 24th December, 1939 (bush 4ft. high, flowers white).

*Ixora orophila* sp. nov.

Cook District: Thornton Peak, alt. 4500 ft., Dr. H. Flecker, 14th Dec., 1940 (N.Q. Nat. Club 7110).  
Ref. Contributions to the Queensland Flora, No. 7, Proc. Roy. Soc. Q'ld., Vol. LIII, 23/2/1942.

## AN EDIBLE FERN

### *Ceratopteris siliquosa* (L.) Copeland.

By K. Kennedy

From a paper read by K. Kennedy, President of the Townsville and District Naturalists' Club, at its meeting, November, 1955.

As the great majority of ferns, or pteridophytes are perennials, it is not often that the botanist comes across one that is annual. Most pteridophytes are inedible, so that one which is an annual and edible is a rare combination.

During an outing of the Townsville and District Naturalists' Club, a number of ferns were found growing on the edge of swamp on the Townsville Town Common. They were identified (1) as *Ceratopteris siliquosa* (L.) Copeland, once known as *C. thalactroides* (L.) Brogniart. All the ferns observed bore fertile pinnae only, and appeared different to specimens I had gathered at Stewart's Creek in 1948, which had barren pinnae only, so the fronds are dimorphic. (2) In addition to being able to reproduce itself by spores, it can propagate itself by bulbils (vegetative buds), but in spite of this double power of reproduction, the fern is comparatively rare in Australia. It occurs in India, Indonesia, Polynesia, the northern and eastern seaboard of Queensland and as far south as the north-eastern coast of New South Wales. In parts of the Malay Archipelago and the Philippine Islands it is grown as a crop, the young fronds being picked by the natives and used as salad, while the larger fronds are cooked and eaten as a spinach.

The fronds are bipinnate and sometimes tripinnate, the fertile ones being longer and narrower than the sterile. The latter are flat, broad, lobed and semi-succulent. The pinnae of the fertile fronds are linear, so caused by both lateral margins bending over to form an indusium to protect the sori. This probably is the reason for its specific name of

*siliquosa*, for the bent over margins give the pinnae a superficial resemblance to a siliqua.

Copeland (3) writes that *C. siliquosa*, as known to him, lives in mud and cannot survive elsewhere. That was so, with those found growing on the edge of the swamp, but two weeks later, with the approach of the dry season, the swamp dried up, leaving the ferns unaffected and growing in normal soil. The specimens which I gathered at Stewart's Creek were growing amongst pebbles in running water, and not in mud. The same author describes the spores as large, tetrahedral and with the free surface ribbed. Bailey (4) describes the spores as large and marbled with concentric rings. My microscope under magnification 600 shows the spores as ovoid-orbicular, and light brown, in colour. From the narrower end arise ridges or veins which fork occasionally, sometimes anastomose, and spread over the entire spore. Numerous nodules occur on the veins and often between them.

Evidently this is not a primitive fern, for the veins of the pinnae are reticulated, a form of venation which evolved from the parallel and forked venation of the archaic pteridophytes.

1. Determined by Miss Mary Tindale, National Herbarium, Sydney.

2. A lithogram showing the fertile and sterile pinnae is shown on p. 12 of "Lithograms of the Ferns of Queensland," Bailey, Brisbane, 1892.

3. Copeland, "Genera Filicum," p. 83, Cron. Bot. Co., U.S.A., 1944.

4. Bailey, "Queensland Flora," p. 1936. Brisbane, 1902.



## Further Notes on Sunbirds at Home

By Cleo Seaton

A sunbird's nest was found in the gully attached to a loop of a *Derris* climber hanging well out from the high embankment, presumably to avoid attention from the green tree ant, *Oecophylla virescens*.

When the chicks are six weeks old, the male develops a coloured bar down the midline from the chin to the breast. This broadens out on each side from the breast upwards. At the same time both chicks start developing their tails and appear to slim off in the body. In a very high pitch they make an effort to join in the parents' chorus.

At the age of nine weeks visits to the garden grew less frequent, while the parents spend more time together.

At the age of ten weeks, the colour patch is just about completed. Both are now musical and trying to call out Tsee-tsee. The parents now ignore them and give chase if they find them visiting the garden. Once more the parents are interested in re-

storing the battered nest. Flitting into the laundry seeking cobwebs they discovered an old shaving cabinet with a mirror. The latter fascinated them, for they returned time after time. Sitting on the knob they lean forward, pecking several times at their reflections, after which they hover and fly up to their reflections ending up by sitting on the top of the cabinet while they lean over the side singly loudly expecting the reflections to join them. This music rings loudly through the hallway and one would think we had a house full of birds for they repeat this performance several times before tiring. What a puzzle for them to solve!

When the weather is hot and dry, they arrive at the front door at any time between 2 p.m. and 4 p.m. expecting me to spray them. Sometimes I tease them just for the pleasure of watching their amazement when I turn off the spray for a few seconds before they have finished showering themselves but, of course, I make it up to them with a little extra.

## BIRDS AT EDGE HILL

By Cleo Seaton

The following list refers to birds around the home and in the gully which runs past our back fence containing the water-course which drains the neighbouring Whitfield Range, seen between 1st December, 1954, to 30th November, 1955. The letter P indicates they are found all the year round. Come and go implies that they spend only a few days every month as they travel down from the hills around the gully and back. If food is plentiful they stay longer.

Cassowary, *Casuaris casuaris* (Latham), 2 chicks, January, 1955. P.

Red-chested Quail, *Turnix pyrrhorrax* (Gould). Wandered

through yard from neighboring cane field. Nesting Oct., Nov. P.

Brown Quail, *Synoicus australis* Latham. Ditto, ditto. P.

Peaceful Dove, *Geopelia placida* Gould. Garden and gully. P.

Bar-shouldered Dove, *Geopelia humeralis* (Temminck). Comes and goes throughout year.

Green-winged Pigeon, *Chalcophaps chrysochlora* Wagler. Remains in gully. P.

Bronze-wing Pigeon, *Phaps chalcoptera* (Latham). Ditto. P.

Stone-curlew *Burhinus magnirostris* (Latham). Canefield and yard. P.

White Ibis, *Threskiornis molucca* Cuvier. Odd ones in cane field.

Straw-necked Ibis, *Threskiornis spinicollis* (Jameson). Cane field. P.

Grey Goshawk, *Astur novae hollandiae* (Gmelin). Odd ones. P.

Brown Hawk, *Falco berigora* Vigors et Horsfield. P.

Nankeen Kestrel, *Falco cenchroides* Vigors et Horsfield. Odd ones. P.

Winking Owl, *Ninox connivens* (Latham). Gully. P.

Powerful Owl, *Ninox strenua* Gould.

Rainbow Lorikeet, *Trichoglossus moluccana* (Gmelin). Comes and goes. P.

White Cockatoo, *Kakatoe galerita* (Latham). Gully. P.

Owlet-nightjar, *Aegotheles cristata* (Shaw). Gully. P.

Dollar-bird, *Eurystomus orientalis* (L.). Odd ones through the year, large numbers during November to April. Best seen during sunset hawking insects.

Laughing Kookaburra, *Dacelo gigas* (Boddaert). Gully and yard. P.

Forest Kingfisher, *Halcyon macleayi* Jardine et Selby. Gully and yard. P.

Sacred Kingfisher, *Halcyon sanctus* Vigors et Horsfield. Odd ones through the year. Gully and yard.

Rainbow-bird, *Merops ornatus* Latham. P.

Large-tailed Nightjar, *Caprimulgus macrurus* Horsfield. Gully. P.

Grey Swiftlet, *Collocalia francica* (Gmelin). Disappeared gradually during April, returning during July.

Fork-tailed Swift, *Micropus pacificus* (Latham). Arrive November, disappear April.

Oriental Cuckoo, *Cuculus optatus* Gould. Only noticed during August in canefield after completion of cultivation.

Black-eared Cuckoo, *Owenavis osculans* Gould. Seen twice only in December, 1954, towards late evening drinking in back yard.

Horsfield Bronze Cuckoo *Chalcites basalis* (Horsfield). Arrives December, during March spends much time around yard and garden as well as gully.

Pallid Cuckoo, *Cuculus pallidus* Latham. Arrives December leaves March. Gully.

Koel, *Eudynamis orientalis* (L.). Comes and goes. Keeps to gully.

Peasant-coucal, *Centropus phasianinus* (Latham). P.

Welcome Swallow, *Hirundo neoxena* Gould. Comes and goes.

Fairy Martin, *Hylochelidon ariel* (Gould). Large flocks, August and September.

Rufous Fantail, *Rhipidura rufifrons* (Latham). Gully. P.

Willie Wagtail, *Rhipidura leucophrys* (Latham). Yard and gully. Nesting October.

Leaden Flycatcher, *Myiagra rubecula* (Latham). Yard and gully. P.

Satin Flycatcher, *Myiagra cyaneoleuca* (Vieillot). Gully. Comes and goes.

Boat-billed Flycatcher, *Machaeorhynchus flaviventer* Gould. Ditto.

Black-faced Flycatcher, *Monarcha melanopsis* (Vieillot). Ditto.

Spectacled Flycatcher, *Monarcha trivirgata* (Temminck). Ditto.

Lemon-breasted Flycatcher, *Microcercus flavigaster* Gould. Yard and gully. P.

White-browed Robin, *Poecilodryas superciliosa* (Gould). Gully. Comes and goes.

Grey Whistler, *Pachycephala simplex* Gould. Gully. Aug. to Feb.

Rufous Shrike-Thrush, *Colluricincla megarrhyncha* (Quoy et Gaimard). Gully. Nesting Sept. P.

Magpie-Lark, *Grallina cyaneoleuca* (Latham). Yard and gully. Nesting Sept. P.

Black-faced Cuckoo Shrike *Coracina novae-hollandiae* (Gmelin). Yard and gully. Comes and goes.

White-breasted Cuckoo Shrike *Coracina hypoleuca* (Gould). Ditto.

Jardine Caterpillar-eater, *Edolisoma tenuirostre* (Jardine).

White-winged Triller, *Lalage tricolor* (Swainson). Gully. Nesting Oct. P.

Varied Triller, *Lalage leucomela* (Vigors et Horsfield). Ditto.



Yellow Figbird, *Specotheres*  
*vieilloti* Vigors et Horsfield. Gully.  
P.

Northern Warbler, *Gerygone*  
*mouki* G. M. Matthews. Gully. P.

Large-billed Scrub-Wren, *Sericornis*  
*magnirostris* (Gould).  
Gully. P.

Tawny Grassbird, *Megalurus*  
*timoriensis*, Wallace. Gully and  
canefield. P.

Golden-headed Fantail Warbler,  
*Cisticola exilis* (Vigors et Hors-  
field). Yard, canefield and gully,  
nesting Nov. P.

Purple-backed Wren, *Malurus*  
*lamberti* Vigors et Horsfield.  
Gully. P.

Lovely Wren *Malurus amabilis*  
Gould. Gully. Nesting Sept.  
Found nest with 3 chicks. P.

Red backed Wren, *Malurus mel-  
anocephalus* (Latham). Garden  
and gully, fairly tame, use bird  
bath frequently. P.

White-breasted Wood-swallow,  
*Artamus leucorhynchus* L. P.

Mistletoe-bird, *Dicaeum hiru-  
dinaceum* (Shaw). Gully and gar-  
den. P.

Yellow-breasted Sunbird, *Cyrto-  
stomus frenatus* (S. Muller). Gully  
and garden. P.

Grey-breasted Silvereye, *Zos-  
terops lateralis* (Latham). Gully.  
Comes and goes.

Yellow Silvereye, *Zosterops lutea*  
Gould. Ditto.

Dusky Honeyeater, *Myzomela*  
*obscura* Gould. Gully and garden.  
P.

Brown Honeyeater, *Glyciphila*  
*indistincta* (Vigors et Horsfield).  
Ditto.

Lewin Honeyeater, *Meliphaga*  
*lewinii* Swainson. Ditto.

Lesser Lewin Honeyeater, *Meli-  
phaga notata* (Gould). Ditto.

Graceful Honeyeater, *Meliphaga*  
*gracilis* (Gould). Odd ones in  
garden and gully.

Yellow-faced Honeyeater, *Meli-  
phaga chrysops* (Latham). Gully.

Macleay Honeyeater, *Meliphaga*  
*macleayana* (Ramsay). Odd ones,  
garden and gully.

Yellow Honeyeater, *Meliphaga*  
*flava* (Gould). Garden and gully.  
P.

White-gaped Honeyeater, *Sto-  
miopera unicolor* (Gould). Odd  
ones, garden and gully.

Noisy Friar-bird, *Philemon cor-  
niculatus* (Latham). Gully and  
yard. P.

Little Friar-bird, *Philemon*  
*citreogularis* (Gould). Gully and  
yard. P.

Australian Pipit, *Anthus novae*  
*seelandiae* (Gmelin). Nesting  
canefield, Oct. and Nov. P.

Horsfield Bushlark, *Mirafr*  
*javanica* Horsfield. Ditto.

Double-bar Finch, *Poephila*  
*bichenovii* (Vigors et Horsfield).  
Gully and garden. P.

Crimson Finch, *Poephila phae-  
ton* (Hombron et Jacquinot).  
Comes down during dry weather,  
Aug. to Jan.

Chestnut Finch, *Lonchura cas-  
taneothorax* (Gould). Garden and  
gully. P.

Red-browed Finch, *Aegintha*  
*temporalis* (Latham). Garden and  
gully. P.

Yellow Oriole, *Oriolus sagittatus*  
(Latham). Arrives late April,  
heard at its best Nov. and Dec.,  
seems to disappear during wet  
season. Keeps to gullies and hills.

Spangled Drongo, *Chibia brac-  
numbers* May to Sept.

Shining Starling, *Aplonis metal-  
teata* (Gould). Gully. Reduced in  
lica (Temminck). Large flocks  
arrive Aug., leave Feb.

Tooth-billed Bower-bird, *Sce-  
nopoeetes dentiostriis* (Ramsay).  
Odd ones, June to Sept.

Australian Crow, *Corvus ceciliae*  
G. M. Matthews. Heard in gully  
late Aug. Unusual to visit these  
parts.

Pied Currawong, *Strepera gra-  
culina* (Shaw). In hills, can al-  
ways be heard, come down gully  
during spring. P.

Black Butcher-bird, *Cracticus*  
*quoyi* (Lesson et Garnot). Re-  
duced in number during winter  
and autumn; 5.30 p.m., 10th Nov.,  
1955, saw odd bird in brown  
phase, whilst they were on way  
up gully. Next morning they  
were heard coming down, when  
they were checked and surely  
their song was heard to match  
the black birds. Late Nov. and  
summer they are heard at their  
best, especially around sunrise.

## A New Form of *Dendrobium fusiforme* F. M. Bail. (Orchidaceae)

By A. W. Dockrill

*Dendrobium fusiforme* F. M. Bail., forma *magnifica*, forma *nova*. Flos in toto albus; forma *typica duplex*.

North Queensland: Bellenden Ker, Oct., 1951. Leg. J. H. Wilkie (holotype). Mount Spec, Oct., 1954. Leg. O. W. Myatt. Mareeba, Oct., 1955. Leg. H. E. Whittaker.

Holotype in the National Herbarium of N.S.W.

There are no notable morphological differences between this and the type form, but it is such

a truly magnificent form, consistent in its combination of wholly white colouring and very large size, and is rather widely if sparingly, distributed, that it deserves some formal recognition.

We have come to expect new finds from Mr. Wilkie, and he deserves increasing credit for each additional one, yet it is gratifying to see two new collectors associated with this orchid and be able to congratulate them accordingly.

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## The North Queensland Naturalists' Club

Meets at School of Arts, usually on second Tuesday of month at 8 p.m.

13th September, 1955: Annual General Meeting. Presentation of Annual Report. Election of officers. President, A. A. Read. Vice-presidents, Dr. H. Flecker, A. B. Cummings, S. Dean, Ziegenfusz, Nankivell and Mrs. H. Smith. Hon. Sec., J. Wyer and D. Peiniger. Committee, all foregoing, also Mrs. A. Read and G. Taylor. Hon. Auditor, Mr. and Mrs. J. M. Gray. Attendance 14 and two visitors.

11th Oct., 1955: Winner of Flecker Natural History Medalion had removed to Townsville where arrangements made by Townsville and District Natural History Society to present this. Second Prize presented to Valda Lawson and Third Prize to Kay Hungerford.

8th Nov., 1955: Agreed to have an annual C. T. White Memorial address, the first to be delivered

by Mr. G. W. Taylor in February next.

13th Dec., 1955: Numerous specimens were exhibited including a nest of the Golden Headed Fantail Warbler well hidden in Blady Grass. Cheque of £10 received from Miss Crommelin, of Pearl Beach, N.S.W. Decided to establish a special Crommelin Fund and to institute plans to form a reserve devoted exclusively to growing native plants.

Excursion to Koombal Park, Brown Bay, 18th Dec., 1955. Transport in own boat provided by the host, Mr. B. Cooke. Living exhibits inspected included two species of crocodile, taipan and other snakes, lizards and birds. An enjoyable Christmas party in fine weather was spent.

NEW MEMBERS elected: 7th Sept. Elystan D'Arcy Evans, 34 Arthur St., Cairns. 13th Dec., 1955. Miss Mary Kulakowski. Junior member.



# The North Queensland Naturalist

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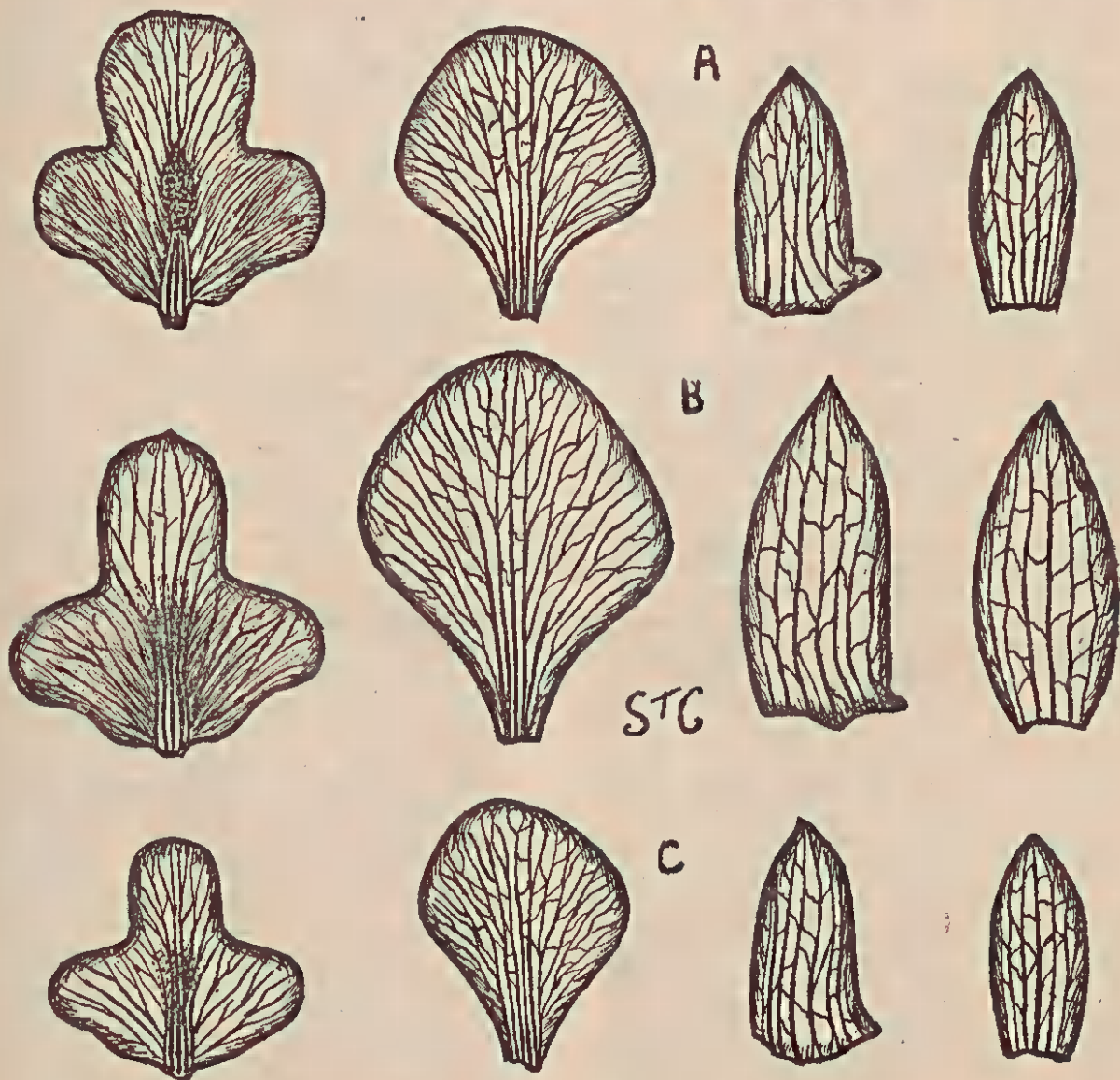
No. 115

## Some Notes on *Dendrobium bigibbum* Lindley, and a Suggested Reclassification of Its Numerous Forms

BY S. F. ST. CLOUD

This species and its variants have been the subject of considerable controversy in the past, and it is the purpose of this paper to assist in clarifying the status of some of the many forms in which it occurs. It is realised that

while we, in North Queensland have access to an unlimited amount of living material for study, others are not so fortunate. Their opinions are consequently formed on findings from a relatively small amount of ma-



Key to Plate—A. *D. bigibbum*. B. forma *phalaenopsis*. C. forma *compactum*.  
L. to R.—Labellum, petal, lateral sepal, dorsal sepal.  
All segments flattened, and selected without regard for size.

terial, and there seems little doubt that many errors of the past have stemmed from this fact. Numerous size and colour forms of this species have been described (and some merely ascribed), as varieties and sub-varieties, but none are of significant morphological difference to warrant inclusion in a scientific paper, and a list of their synonyms would make this paper so unwieldy that it would be worthless, and consequently they have been omitted. *D. bigibbum* is subject to variation in colour and dimension of flower, but to no greater degree than other species. Flowers collected over an area extending from Cape York to a little north of Cooktown, show on careful examination, that they are constant in morphology, and it is with this fact that we are to be concerned.

A well-grown plant of the species attains a usual length of 100-120 cm. in the stem, and this dimension was commonplace before the wholesale plunder of these plants in recent times. The species and its forms, with the exception of sub-var. *compactum* White, cannot be separated when not in flower. There are certain variants that have evolved from the type, and it is in these members that the differences are so marked, to such a degree at times, that it is difficult to differentiate between species and forms. It seems beyond doubt that these variations have also played an important part in creating a misunderstanding of the species. Authors with limited material to work with, have apparently assumed that the various forms were constant and warranted specific or varietal status.

Observations in the field, and in cultivation have proven that these factors, principally colour and dimension which are unimportant in the determination of status, are not fixed. On individual plants, an annual variation is commonly shown in the flowers, and habitat and host appear to play an important role in producing these variants. Comparison of the flowers of *D. bigibbum* with that of its forms, shows that there are two which are sufficiently stable to warrant attention,

forma *phalaenopsis* Fitz. and forma *compactum* White, and of these two forms the only substantial difference from the type form is in the labellum. In the type species, the disc has five smooth callus ridges, emerging from the short claw, contracting at about one-third of the length of the lamina, then forming a dense white ovate mass of fringed callosities, with irregular short lines diverging outward, merging with and disappearing on to the veins of the mid-lobe. In all other forms, the callus ridges, after about one-third of the length of the lamina, subdivide into 5-7 irregular rows of purple fringed callosities, which extend on to and disappear at the junction of the mid-lobe. In the type form the sepals and petals are usually recurved, and in all other forms these segments are straight. Forma *phalaenopsis* has a greater number of flowers than the type, and they are usually larger with the segments forming an unbroken circle. All forms are prominently double spurred as in the type, and in the column, stigma, anther and pollinia, are also identical with those of that species.

There are certain features of forma *compactum* that warrant special mention; the plant separates readily from other forms by reason of the sturdy compact growth, the stems of which reach a usual length of 12-18 cm.; which is rarely exceeded. The flowers are usually fewer in number and more richly coloured than those of any other form. An average raceme bears 8-10 flowers up to 9 cm. across the perianth. The plant has evolved a peculiar method of growth to fit the extremely arid conditions which prevail on the Macalister Range where it is to be found in greatest quantity. During the monsoon rain period, these rock faces on which the plants grow, are continually wet, but for the remainder of the year the area is extremely dry, the cliffs are practically devoid of shade, and the rocks are hot to the touch. Delicate root tips and fresh new growths are not affected, the small quantity of moisture needed to sustain life in the plants can be obtained only from the dew, or



from the night mist from the sea close by. The range of habitat is from altitudes of 1000 feet to 2000 feet, growth below this level is not successful, for the sunlight being obscured in the lower rock gullies is evidently the cause of this. A small number of these plants has trees and shrubs for hosts, and despite the relatively cooler habitat and more abundant plant food, they show no tendency to revert to the long stems of the forma *phalaenopsis*.

On occasions a reversion to type can be seen in the form of a distinctly *compactum* form of plant, with a *bigibbum* flower. Flowers with varying degrees of albinism are more common in this form than any other, and there is no evidence in the quantity and distribution to suggest reproduction. Certain isolated colours occur in the flowers, notably shell pink and lilac, and the occurrence of lilac in any member of the *bigibbum* group is unusual. The mineral element contained in the rocks may play an important part in producing these colour variations. Plants growing under apparently identical conditions, but on different rocks, show colour variations too marked to be explained by any other means. The general colour range is from pale pink to deep rose purple, and by this latter colour, the forma *compactum* is best known. The largest flowers with the richest colours are usually produced by the most exposed plants which are smaller than average and matured to a brick red colour by exposure to the sun. It would appear almost a rule that the finest floral response is to the harshest conditions.

An interesting feature of this area is the occurrence in quantity of *D. undulatum* R. Br. This species grows well on the rocks, very often in close proximity to the forma *compactum*, often so close that the roots of both are intertwined. The flowering season of *D. undulatum* begins in July-August, and continues into December, the season for the forma *compactum* extends into September and later. I have seen many plants of both flowering together, the flowers infested with *Oecophylla virescens* (Green Tree Ant), and also visited by *Trigona hockingi* (Native Bee). Both

flowers are of equal dimension, particularly in the column, stigma and pollinia, and of such structure generally to suggest equally facile entry by a common insect.

I have failed to discover any evidence of hybridisation between these flowers. The nearest known occurrence of the forma *phalaenopsis* is 10-12 miles in a direct line from this area. I am satisfied after visiting these ranges regularly for several years, and observing the great range of plants and flowers that this form evolved from the forma *phalaenopsis*. The very rare white form should be specifically mentioned as an albino flower, identical in its morphology with the type form. It does not reproduce itself and as such does not warrant varietal status. On the few occasions that these plants have been found, despite wide search by the collectors, no duplicates have been found within an extensive radius of such specimens, and the plants that have been cultivated from the seed of the white flowers have produced purple blooms without exception. In years of cultivation, the white flower has proved to be a constant feature of each plant, and variations in culture show no tendency to upset this fact. Varying degrees of albinism are commonly seen in all forms of *D. bigibbum*.

A series of comparative drawings from living material has been done to illustrate the close alliance between this species and the related forms. It must be stressed that the drawings refer to the shape by which each specimen is most commonly known. In all three, the mid lobe of the labellum in particular, has a range of shapes from deltoid to flabelliform, and from emarginate to apiculate, and the apiculate tip is not uncommon in the sepals and petals of all members of this group. Comparison of these accompanying drawings will show that there is insufficient evidence to support the past status of these two members of this group, and as all other named varieties of this species have proved to be unstable colour variants of forma *phalaenopsis* and forma *compactum*, I venture to suggest that they be suppressed; they can be of interest only to horticulturists.

# REVISION OF DENDROBIUM LICHENASTRUM (F. Muell) Krzl. AND ITS ALLIED FORMS (Orchidaceae)

BY A. W. DOCKRILL

In Proc. Linn Soc. N.S.W. 72:237 etc. (Jan., 1948), Rupp and Hunt expressed dissatisfaction with Nicholls' treatment of the group:—*D. lichenastrum*, *D. prenticei* (F. Muell.) Nich., *D. variabile* Nich. and *D. aurantiaco-purpureum* Nich. (cf. N.Q. Nat. 8: No. 55 (Sept. 1938); *ibid.* No. 56 (Dec. 1938) and *ibid.* 10: No. 68 (March, 1942)). The present author was familiar with some of these forms, having seen them in parts of the Seaview Range and Atherton Tableland about 17 years ago; and during the past three years it has been his good fortune to receive from a number of ardent collectors, particularly S. F. St. Cloud, J. H. Wilkie and W. W. Abell, numerous fresh and preserved specimens of all four, together with their field observations on them—from the Trinity Bay, Atherton Tableland, Seaview Range and Babinda-Mt. Bartle Frere areas. In the light of this evidence, Rupp's and Hunt's apprehensions appear well founded.

Doubts about the validity of the specific rank accorded to some of these forms were first entertained about three years ago when a number of preserved flowers were received, the identity of any one of which I was unable to establish: in each case the flower was distinct from any of the four "species." I became increasingly interested as more and more specimens came to hand; of these only a few were reconcilable with one or the other of the published "species," while many had flowers of one "species" in conjunction with leaves of another; most, however, were either intermediate between some two or showed some variation from all four.

Conclusions drawn from the examination of this material:—

1. The leaves of *D. lichenastrum* are flattish and more or less orbicular or broad-elliptical, and may or may not be somewhat obtusely pointed and do not vary greatly under changing environ-

ment. The flowers, on the other hand, are quite variable and indistinguishable from those of most other forms of this group.

2. As for the other three "species," the leaf variations and the various means by which leaf is attached to rhizome, as illustrated by Nicholls l.c. (and there are even further variations), may all be found on the ONE plant, depending on the growth of its rhizome from a shaded to a more exposed position (or vice versa) on the host tree. Possibly nutritional factors enter into it also. The leaf variation is truly amazing, ranging through terete, ellipsoid and subcylindrical; some are slightly channelled and others even falcate.

3. It is quite common to find more than one flower form on the one plant.

4. The only flower form of sufficient morphological stability to justify its separation from the others is *D. aurantiaco-purpureum*. It is not found in association with leaves of the *D. lichenastrum* shape, but its leaves are indistinguishable from the others and just as variable.

5. It would seem that Nicholls either received very few specimens on which to base his findings or else his specimens were selected in the field and not just collected at random.

The following scheme is a proposed reclassification of the group:—

*Dendrobium lichenastrum* (F. Muell.) Krzl. (emend. incl. var. Dock.).

1. var. *lichenastrum*

Syn. *Bulbophyllum lichenastrum* F. Muell, *Fragm.* 7:60 (1869); Benth., *Fl. Austr.* 6:287 (1873); F. M. Bail, *Q. Flor.* 5:1537 (1902). *D. lichenastrum* (F. Muell.) Krzl., *Engl. Pflzr.* 6: 2b, 21, 289 (1910); Nich., *N.Q. Nat.*, 8:, no. 55 (Sept., 1938). *Ibid.* Et no. 56 (Dec. 1938)



2. var. *prenticei* (F. Muell.)  
Dock. comb. nov.

(a) forma *prenticei*

Syn. *Bulbophyllum prenticei* F. Muell., Wing's  
Sth. Sci. Rec. 1:173  
(1881); F. M. Bail.,  
Q. Flor., 5:1539 (1902).  
*B. lichenastrum* Fitzg.,  
Austr. Orch., 2: Pt. 5  
(1893), non F. Muell.  
*D. prenticei* (F. Muell.)  
Nich., l.c.  
*D. variabile* Nich.,  
l.c.

(b) forma *aurantiaco - purpureum* (Nich.) Dock.  
comb. nov.

Syn. *D. aurantiaco - purpureum* Nich., *ibid.*,  
10: no. 68 (March  
1942).

It is considered that the inclusion of the various forms within the species *D. lichenastrum* constitutes an interpretation of the species considerably different to that originally outlined by Mueller and calls for the addition of an emend. in this proposed interpretation of it.

An aid to the identification of forma *aurantiaco - purpureum* is its relatively robust ovary and flower, broad mentum and labellum, which is only slightly, if at all channelled, widely expanding segments and prominently red-striped and recurved sepals. This may sound impressive, but the morphological differences between it and the other forms are very slight when the variability of the

species as a whole is taken into account, and other variations closely approximate to it, so that attributing formal rank to it is not done without some misgiving. The form illustrated by Fitzg. l.c. hardly conforms to this description of forma *aurantiaco - purpureum* (as suggested by Nicholls l.c.): a careful comparison between the illustrations of Fitzgerald and Nicholls reveals a number of differences, particularly in the labella. The author has never seen labellum ridges as depicted by Fitzg. l.c. on any fresh flower of any form of this species, but an occasional flower, when dried appears to show them.

The grouping into the one species of plants with leaves as different as those of var. *lichenastrum* and var. *prenticei* may at first seem unjustified but it is the morphology of the flower with which we should be concerned; and when all this is said and done, these leaf differences are little or no greater than those seen in other species, e.g. *Thelymitra ixioides* Sw., *T. pauciflora* R.Br., *Bulbophyllum aurantiacum* F. Muell. It is worth noting also that immature leaves of var. *lichenastrum* are often swollen and ellipsoid in shape, and flatten and broaden on maturity.

The value of Nicholls' excellent illustrations should not be overlooked, as they serve to indicate some of the variations of this complex species.

## New Variety of *Dendrobium Canaliculatum* (Orchidaceae) from Cape York Peninsula

BY A. W. DOCKRILL

*Dendrobium canaliculatum* R.Br.  
var. *pallidum*, var. nov.

Planta formae typicae similis; ab hac, a var. *nigrescens* Nich. et a var. *foelschei* (F. Muell.) Krzl praecipue differt:—Labello albo; lobo medio lato ac brevi, eius lineis alte elevatis et prominentibus. Segmentis perianthis crassis, non tortis, albis, eorum extremis sub-viride-flavis. Sinu

inter sepala lateralialia latiore. Columna lata ac firma. Anthera subplana sed canaliculata.

Cape York Peninsula:—Starcke River 8/1954 and 8/1955. Leg. C. G. Le Roy.

Holotype in the National Herbarium of N.S.W.

Plant similar to var. *canaliculatum* but readily distinguished from it, var. *nigrescens* Nich. and

var. *foelschei* (F. Muell.) Krzl. when in flower, the labellum being pure white, its mid-lobe short and broad and the ridges thereon very tall; perianth segments stout, not twisted, white with pale yellowish-green apices; sinuses of lateral sepals broader; column broader and more robust; anther flattish and distinctly channelled.

All these features combine to give this flower not only a distinctive colour but "set," making its identification very simple.

To the collector, who states that this variety is abundant in the area, goes the credit for bringing to notice yet another interesting orchid from inhospitable Cape York Peninsula.

## An Amended Classification of the Orchid Genera Occurring in Australia and New Zealand

By Edwin D. Hatch, Laingholm, Auckland, S.W.4, N.Z., and  
A. W. Dockrill, George's Hall, N.S.W.

In the Honduras journal CEIBA 4: 222 (1954) Hatch published an amended classification of the primary orchid categories, designed to bring Schlechter's 1926 arrangement into line with the International Code of Botanical Nomenclature. Two points in the CEIBA paper require comment:—

- (a) The 'D' in *orchiDoideae* and *orchiDeae* was deleted inadvertently and should be retained.
- (b) It is conceivably desirable that the old subfamily names 'Monandrae' and 'Diandrae' should be conserved, but at the moment they contravene Articles 2 and 29 of the Code, and are therefore invalid. So that unless and until they are published as *nomina conservanda* by some future International Congress, the names of the subfamilies are CYPRIPEIDIOIDEAE and ORCHIDOIDEAE respectively.

The following list contains the 85 orchid genera at present known to occur in Australia and New Zealand, arranged according to the CEIBA classification. Naturalised exotic genera are included, as well as a couple of probable escapes (*Aerides* and *Dactylorhiza*). † Indicates naturalised genera and \* genera which occur in New Zealand but are absent from Australia.  
Family ORCHIDACEAE

Subfamily 2 ORCHIDOIDEAE  
Anther-type (1) ACROTO-  
NEAE

Tribe (ii) EPIPACTIEAE

Subtribe PTEROSTYLIDINAE —

*Pterostylis* R. Br.

Subtribe DIURIDINAE — *Orthoceras* R. Br.; *Diuris* Sw.

Subtribe THELYMITRINAE —  
*Thelymitra* Forst.; *Epiblema* R. Br.; *Calochilus* R. Br.

Subtribe PRASOPHYLLINAE —  
*Microtis* R. Br.; *Prasophyllum* R. Br.; *Genoplesium* R. Br.; *Corunastylis* Fitzg. *Goadbyella* Rogers.

Subtribe DRAKAEINAE — *Chiloglottis* R. Br.; *Caleana* R. Br.; *Drakaea* Lindl.; *Spiculaea* Lindl.

Subtribe CALADENIINAE — *Glossodia* R. Br.; *Eriochilus* R. Br.; *Adenochilus* Hook. f.; *Caladenia* R. Br.; *Petalochilus* Rogers\*; *Aporostylis* Rupp and Hatch\*; *Burnettia* Lindl.; *Leptoceras* Lindl. *Lyperanthus* R. Br.; *Rimacola* Rupp.

Subtribe ACIANTHINAE — *Acianthus* R. Br.; *Townsonia* Cheesmn.

Subtribe CORYBADINAE — *Corybas* Salisb.

Subtribe CRYPTOSTYLIDINAE — *Cryptostylis* R. Br.

Subtribe VANILLINAE — *Galeola* Bl.

Subtribe NERVILIINAE — *Nervilia* Gaud.

Subtribe EPIPOGINAE — *Epipogon* Gmel.

Subtribe GASTRODIINAE — *Gastrodia* R. Br.; *Didymoplexis* Griff.



- Subtribe RHIZANTHELLINAE —  
Rhizanthella Rogers; Cryptanthemis Rupp.
- Subtribe SPIRANTHINAE — Spiranthus L. C. Rich.
- Subtribe PHYSURINAE — Goodera R. Br.; Cheirostylis Bl.; Zeuxine Lindl.; Anoectochilus Bl.; Hetaeria Ldl.
- Subtribe TROPIDIINAE — Corymborchis Thou. ex Bl.
- Tribe (iii) EPIDENDRAE  
Inflorescence-type A. AC-RANTHAE
- Subtribe LIPARIDINAE — Oberonia Lindl.; Liparis L. C. Rich.; Malaxis Sw.
- Subtribe COELOGYNINAE — Pholidota Lindl.
- Subtribe EPIDENDRINAE — Epidendrum L.†
- Subtribe DENDROBIINAE — Dendrobium Sw.; Cadetia Gaud; Eria Lindl.
- Subtribe GLOMERINAE — Earina Lindl.\*
- Subtribe FODOCHILINAE — Podo-chilus Bl.
- Subtribe POLYSTACHINAE — Bromheadia Lindl.
- Inflorescence - type B.  
PLEURANTHAE  
Growth-form (a) SYMPODIA
- Subtribe PHAIINAE — Calanthe R. Br.; Phaius Lour.; Spathoglottis Bl.; Pachystoma Bl.
- Subtribe BULBOPHYLLINAE — Cirrhopetalum Lindl.; Bulbophyllum Thou.
- Subtribe CYRTOPODIINAE — Geodorum Jacks.; Eulophia R. Br.
- Subtribe CYMBIDIINAE — Dipodium R. Br.; Cymbidium Sw.
- Subtribe THELASINAE — Phreatia Lindl.
- Subtribe THECOSTELINAE — Acriopsis Reinw. Ex Bl.
- Growth-form (b) MONOPODIA
- Subtribe SARCANTHINAE — Thrixspermum Lour.; Chiloschista Lindl.; Drymoanthus Nich.; Sarcophilus R. Br.; Rhinerrhiza Rupp; Peristeranthus Hunt; Phalaenopsis Bl.; Luisia Gaud.; Vanda R. Br.; Saccolabium Bl.; Mobilabium Rupp; Schoenorchis Bl.; Sarcanthus Lindl.; Camarotis Lindl.; Taniophyllum Bl.; Aerides Lour.†
- Anther-type (2) BASITONEAE
- Tribe (iv) ORCHIDEAE
- Subtribe ORCHIDINAE — Dactyloorchis Verm.\*†
- Subtribe HABENARIINAE — Habenaria Willd.
- Subtribe DISINAE — Monadenia Lindl.†

## \* TWO HUMUS MAKING FERNS

*Drynaria rigidula* (Sw.) and *D. sparsisora* (Desv.) Moore

By K. KENNEDY, Townsville

A green-house gardener always has a quantity of humus on hand to be used when re-potting his plants. The making of humus, however, is not solely a human practice. It has been evolved by Nature, for some ferns have the power of holding fallen leaves and other forest debris by means of specialised fronds, and, when the retained material has decayed into humus, they use it as food.

This habit is especially noticeable in the genus *Drynaria*, two species of which grow on the slopes of the Paluma Range, and on Mount Cook, Magnetic Island. One, *Drynaria rigidula* can be

seen perched on rocks and trees, where it often forms huge clumps. Sometimes, it entirely surrounds the upper trunk of a tree and projects outwards like a shelf, forming a container which holds the humus it has caught. This is made possible by the shape and texture of some of its leaves, for it is dimorphic, having two kinds of fronds—normal fronds and nest, or as they are sometimes called, scale leaves. The normal leaves are photo-synthetic and bear the sori. They are pinnate, the pinnae being lanceolate with undulatory edges, measure four to five inches in length, and have a reticulated venation. The sori

are orbicular and arranged in two rows, one on each side of the mid-rib. Each is slightly sunk in a small depression which shows out on the dorsal surface of the pinna as two rows of pustules.

The nest or scale leaves are entirely different in shape and texture, for they are simple, broad, sessile and scarious with a rigid venation which remains after the scanty cellular material has decayed. As the genus belongs to the Family **Polypodiaceae**, the rhizome is creeping and is thickly covered with ramenta or paleae.

Bailey in his *Queensland Flora*, 1902, describes **D. rigidula** under the synonym of **Polypodium rigidulum**, and mentions two varieties, the first being **var. vidgeni** Bail., found at Oxley Creek, Brisbane River, by J. G. Vidgen after whom it was named, and near Herberton, N.Q., by C. J. Wild. In this variety, the pinnae are lanceolate, undulate and irregularly incised. Some fine examples can be seen in the Botanic Gardens, Brisbane, and there are a few growing in Townsville greenhouses, where it is sometimes known as the tinsel fern. The other variety mentioned is **var. cristatum**, in which the ends of the pinnae are dichotomously forked forming tassels.

Later, in his *Comprehensive Catalogue of Queensland Plants*, 1909, Bailey figures two more varieties—**var. whitei** Bail., named after the late C. T. White, and **var. diversipinne** Bail. The pinnae of the former are deltoid in outline and deeply incised. The latter variety consists of aberrant pinnae as its name indicates. A fine basket of **var. whitei** can be seen growing in the orchid house of Mr. Charles Freeman, Belgian Gardens, Townsville.

**D. rigidula** is found throughout the eastern part of Queensland, and extends southwards into New South Wales as far as the Blue Mountains (1). To the north it reaches the Malay Archipelago, and eastwards to the Pacific Islands (2).

Lower down on the forest floor grows another **Drynaria**, **D. sparsisora**, which rambles amongst

rocks and soil. In this species the fertile fronds are not pinnate but are simple and deeply pinnatifid, and the sori are not sunk in depressions. The scale fronds are similar in appearance to those of **D. rigidula**, but they form their nests on the ground. The rhizome is thicker and flatter than that of **D. rigidula**. It also extends to the Malay Archipelago and the Pacific, but to my knowledge it does not reach New South Wales.

In both species, the pinnae of **D. rigidula** and the lamina of **D. sparsisora** are articulated to the rhachis, and when they wither they abscise leaving the stipe standing. Several of these rigid and persistent stipes give the fern a "porcupine" appearance, and are an additional help in holding fallen leaves, twigs etc. for future nourishment.

Both **D. rigidula** and **D. sparsisora** are completely moderate ferns, for their rhizomes are dictyostelic and densely covered with ramenta, and the veins of the leaves are reticulated. All these attributes are signs of an evolutionary advance.

Viewed under the microscope the ramentum (paleae or chaff scale) of these two species is seen to be elongate, and has ciliate edges which fall off when the ramentum gets older.

**D. rigidula** and **D. sparsisora** are easily grown in a warm climate, but need an acid humus. Lime kills them. As it grows in the thinner forest, **D. rigidula** requires plenty of light, and when cultivated in a hanging basket the scale leaves will form an imbrication underneath it like fish scales. **D. sparsisora** being a denizen of the darker forest floor does not need so much light.

(1) WATTS, W. W., *Ferns, Mosses and Hepatics*, N.S.W. Handbook, British Association for the Advancement of Science, 1911, p.451.

(2) BAILEY, F.M., *Queensland Flora*, p.1987.

\* From paper read at meeting of Townsville and District Naturalists' Club, March, 1956.









# The North Queensland Naturalist

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## NESTING OF GREY SWIFTLET ON BEDARRA ISLAND

By JOHN BUSST

NESTING of the Grey Swiftlet, *Collocalia francica* Gmelin, begins at the end of August or early September. The name is a misnomer for it is really a bluey-brown, with a white band at the base of the tail. Observations were commenced on 20th October, 1955, when there were counted 38 nests fully made, of which five contained one egg each. In addition, 39 nests were in process of construction. The accompanying photographs were taken in 1953 by Messrs L. J. Webb and Harold Hayes, of the Plant Industries Division of the C.S.I.R.O. They are not very good, but the location of the nests and the poor light made photography difficult.

The location of the nests is in a semi-cave, with three entrances, amongst huge granite rocks on the south-east end of Bedarra Island. This is the aboriginal name of the island, but it appears on the Admiralty chart as Richards Island and is situated five miles south of Dunk Island, the only place in Australia where these birds had hitherto been known to build their nests. Captain Cook called the island Richards. Bedarra is the somewhat inaccurate anglicised version of the aboriginal name. From an old Tully identity, Chris Wildsoet, who knew the Dunk Island tribe, I believe the actual name should be Beeg-ah-rah. The postal officials and local people recognise the name Bedarra.

The nests are built on a sloping wall inclined at an angle of about 45 degrees. The birds, while they are being watched, show most extraordinary skill in avoiding one, frequently passing at high speed within a few inches of one's head, emitting at the same time the characteristic clicking sound coupled with a high "cheep-cheep." A midnight observation, which I made early in January, 1954, showed about 140 nests, practically all occupied by birds, and with a considerable number (impossible to count owing to constant movement) clinging to the walls beside the nests (doubtless the unfortunate husbands). In the daytime, there are frequent squabbles amongst the birds for the possession of nests, particularly when the eggs are hatched. The miracle is that very few eggs on the fragile nests are dislodged during the entire season.

As to whether all the swiftlets are concentrated in the single colony here, I do not know, but I keep making inquiries from professional fishermen who move about the islands more than most people, but as yet they know of no other breeding site for these birds.

I learn from Mr. Fred Boland, of the Hull River, who was some eight years ago living at Timana (Thorpe) Island, between Bedarra and Dunk Islands, that he observed a small colony of swiftlets nesting on a sheltered rock face there. However, since the collapse of the rock face, he has not seen them since.

Nests are composed of the fine fluted stems of the beach sheoak *Casuarina equisetifolia*, which has whorls of tiny, insignificant leaflets at each of the nodes and on the whole resemble somewhat pine needles. The trees grow generally over all the foreshores in North Queensland. There are also a few feathers and some secretion to bind these together. I have never yet actually seen the birds collecting these stems or hover about the sheoaks on which they grow or on the ground below for the purpose, but presume that they use the dead and dried stems only, for I have not yet observed a green stem incorporated into the newly built nests.



Not being an expert, I cannot differentiate the male from the female so am unaware of variations from the normal in egg hatching habits.

On 27th October, 72 nests were completed, 21 were incomplete, and 17 eggs were counted.

On 4th November, 121 nests were completed, 22 incomplete, and 1 eggs were noted.



Nests hanging below sloped  
roof of cave.

Photographs by L. J. Webb and  
Harold Hayes



On 10th November, there were 129 completed nests, with 27 incomplete, as well as 27 eggs.

On 24th November, there were 197 completed nests, 6 incomplete, and 67 eggs, including two in the same nest, the only instance of such noted. There were three newly hatched fledgelings.

A snake was found partly coiled around a nest in process of devouring a swiftlet, head first, the former about two feet in length. It is difficult to understand how it could ascend the lower surface of a sloping wall inclined at an angle of 45 degrees. However, the snake was promptly dispatched and fell to the bottom of the cave. On descending by ladder, I was unable to find any trace of either the snake or of the partially devoured bird. The reptile's back was broken but it was able to slither down between the many boulders at the bottom of the cave. Probably the snake was a species of *Boiga*, the Brown Tree snake.

Since the average number of nests here is 140 to 150, it is clear from the last figures that the colony is definitely increasing in size, due either to natural increase or to migration of other colonies to Bedarra. In 1952, observations were made during the nesting season, August to February, by myself and my wife on behalf of the C.S.I.R.O., and particularly by Mr. Harold Hayes of Coff's Harbour, N.S.W. It would appear that the colony has increased in size by about a third since my original count at this period.

On 1st December, there were 204 nests completed, 3 incomplete, 59 eggs, and 9 fledgelings. The two eggs in one nest had not yet hatched but I shall be interested to learn what actually happens.

I was able to dispel a suspicion that I had that the fledgelings were in some way gummed to the nest by the secretion used in building the nest. The claws of the chick are hooked firmly round the bundles of casuarina stems in the inside of the nest permitting the feet to have complete freedom of movement. Fledgelings when freshly hatched look like pink shrimps but soon show signs of development, so that a bird about a quarter mature begins to develop feathers.

9th December, 1955: 204 nests, 3 dislodged and lying on the ground, all nests complete, 91 eggs, 8 fledgelings (last week there were 9). As some of the fledgelings are now almost fully grown, I presume either that some have left the nest or that there was further mortality caused by the snake.

19th January, 1956: 224 nests, with 24 fledgelings and 17 eggs.

16th February, 1956: nests 224, fledgelings 7, eggs 3. Seven nests were incomplete, apparently still in process of building as they look new and fresh. As to whether they will be completed and occupied remains to be seen. Apparently, continuous hatching takes place throughout the season and at no time are all the nests simultaneously occupied with eggs and fledgelings.

23rd March, 1956: nests 224, fledgelings 2, egg 1. Two nests incomplete, probably will not be completed.

April 7th: Swiftlets completely finished nesting and hatching. All nests empty, and the birds are apparently gone from the island. They were here until 4th April.

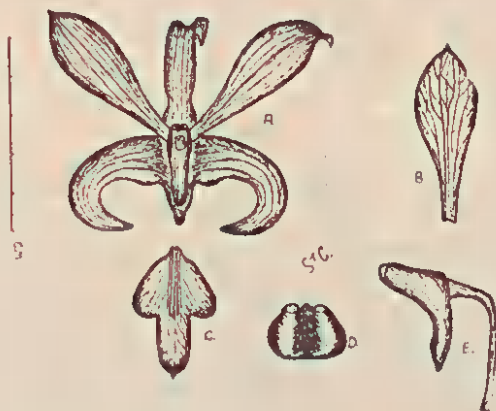
April 10th: Swiftlets back again—apparently only temporarily in pursuit of food.

The maximum number of completed nests appears to have been 224 completed by 19th January, the same number being counted on 16th February and 29th March. The maximum number of eggs, all solitary with but one exception being 91 on 9th December, and the maximum number of fledgelings being noted as 24 on 19th January, although at other times no more than nine were counted.

The severe cyclone which ravaged North Queensland ("Agnes") on 6th March, left the colony undamaged. The rock formation where the colony nested was fully exposed to the path of the cyclone, but the position of the 45 degree angle wall prevented any damage at all to the nests from either the wind or the rain.

**DENDROBIUM VINICOLOR** sp. nov.

By S. F. ST CLOUD



Key to plate:—

- A. Flower front, labellum removed  
 B. Petal  
 C. Labellum, flattened

- D. Anther from rear, reversed  
 E. Column, ovary, and pedicel  
 A., B., C. natural sizes  
 D. and E. variously enlarged

**P**LANTA robusta saxicola. Pseudobulbi appressi solidi, globosi. Caulis 35-45 cm. altus, a medio tumidus ad circa 2.5 cm. diam., dimidius superior a venis purpureis subnigris; dimidius inferior a bracteis vaginalibus scariosis vestitus. Folii 8-10, dimidio superiore caulis alternati, virides subnigri, in textis tenues, ovati, inaeque emarginati, inferiore paululo carinati, superiore paululo canaliculati, 10-13 cm. longi, 2.5-3.0 cm. lati. Racemi terminales, semierecti, 30-35 cm. longi, 3 mm. diam. a base; bractee basales 3, subacutae, circa 1.5 cm. longae; bractee pediceles subtendentes deltoidales; pediceles cum ovario circa 3.5 cm. longi. Flores 10-12 circa 7.5 cm. diam., late expandentes, colore vino subnigro, iridescentes cum antheris flavo candido. Segmenta apiculata. Sepale dorsale circa 3 cm. longum 8 mm. latum, lato-lineare subacutum, recurvatum. Sepalia lateralia circa 3 cm. longa, 1 cm. lata a base, falcata, marginibus ad superiore flexa canaliculum rotundum per totam longitudinem faciendum. A base unita ubi cum pedicelae columnae calcar conicale solitare circa 1 cm. longum faciunt. Petalia circa 4 cm. longa, 1.5 lata, oblanceolata, a base attenuata et paululo torquata. Labellum circa 3 mm. longum, 2 cm. latum; lobus medius saltem dimidius longitudinis labella, lato-linearis, subacutus, apice recurvato; lobi laterales semiangusti cordati, erecti; discus laminae non prominens, callum centrale paululo sublatus in duo tertiis laminae, marginibus tum ad finem paululo ultra coniunctionem lobi medii sublatis. A base ab ultra initium ipse marginium sublatus, 3 iuga non-interrupta recta, anteriore sublata ad altitudinem 1 mm. sunt. Columna lata; alae crassae, altae quam antherae. Anther duo saccas urceolatas constans. Pollinia difficillime ab antheris amovendum, lunata latis planatis.

A robust plant growing on rocks. Pseudo-bulbs closely appressed spherical. Stems 35-45 cms. high, swollen about the middle to about 2.5 cm. diam., the upper half marked with dark purple veins, the lower half clothed with scariosus sheathing bracts. Leaves 8-10, alternate on the upper half of the stem, dark green, thin in texture, ovate, unequally emarginate slightly keeled below, slightly channelled above, 10-13 cms. long and 2.5-3.0 cms. broad. Racemes terminal, semi-erect, 30-35 cms. long, 3 mm. dia. at the base; basal bracts 3, subacute, about 1.5 cms. long; bracts subtending pedicels deltoid; pedicel with ovary, about 3.5 cms. long. Flowers 10-12, about 7.5 cms. diam., widely expanding, coloured iridescent deep wine with a bright yellow anther. Segments apiculate. Dorsal sepal about 3 cm. long and about 8 mm. broad, broad-linear, subacute, recurved. Lateral sepals about 3 cm. long and about 1 cm. broad at the base, falcate, margins upturned so as to form a rounded channel for their entire length, united at their base where they, with the column foot, form a single broad conical spur about 1 cm.



long. Petals about 4 cms. long and about 1.5 cm. broad, oblanceolate, attenuated at the base and slightly twisted. Labellum about 3 cms. long, and about 2 cms. broad; mid-lobe at least half the length of the labellum, broad linear, subacute, apex recurved; lateral lobes semi-narrow-cordate, erect; disc of the lamina not prominent, consisting of a slightly raised central callus on the basal 2/3 of the lamina, its margins then raised to its terminus slightly beyond the junction of the mid-lobe. From its base to just beyond the commencement of the raised margins, are 3 unbroken straight ridges, raised anteriorly to about 1 mm. high. Column broad; wings thick, as high as the anther. Anther consisting of 2 urceolate sacks. Pollinia very difficult to remove from the anther, crescentic with flattened sides.

Distribution:—North Queensland; Mt. Charlie (25 miles north of Cairns) at approximately 1600 ft. altitude, August, 1955—Leg. N. Whittaker (Holotype); Mt. Mar, at about 2500 ft. altitude, April, 1956—Leg. S. F. St. Cloud. Holotype in the North Queensland Herbarium, Cairns.

This species is without doubt, the most beautiful *Dendrobium* recorded in Australia. It has some affinity with *D. superbiens* Reichb, but it separates from that species by the semi-erect raceme which is also shorter and more robust than in the latter species, sepals which are considerably longer and more slender and petals which are oblanceolate rather than broadly cuneate or obovate. The labellum is large and of nearly equal length to the other segments, rather than shorter and smaller, the lateral lobes narrow cordate, rather than rhomboidal, and the mid-lobe considerably longer and narrower. The lamina is narrower, and the ridges of the disc are relatively shorter, the anterior portion not spreading or prominently raised in thin plates which is an outstanding feature of *D. superbiens*. The anther is bright yellow rather than white, and has no parallel in any North Queensland *Dendrobium* in the method of containing the unusually shaped pollinia. The habitat of this species is in the remote areas of mountainous country at an approximate altitude of 2000 ft. It is possibly a rare species, and the difficult nature of the country where it grows, consisting of large areas of exposed rock and loose shale at the summit of this range, seriously hampers exploratory work. Only one plant was originally found by Mr. Whittaker, and despite intensive exploration by such able collectors as Messrs Holland, Le Roy, and Wilkie, no further plants could be found. It was only in recent times, and after a number of expeditions, that the author was able to discover further flowering plants, in an even more remote area about 5 miles from the type locality.

## The Southern Hemisphere Maiden-Hair Fern

*Adiantum aethiopicum* L

By KEITH KENNEDY, Townsville

WHEN Europeans began to settle in Australia, they found a fern which they thought was the maiden-hair of their homeland, so they called it by that name. However, it is a different species to that of the Northern Hemisphere maiden-hair, which has smaller fronds, larger pinnules and differently placed sori.

Recently on looking through an old medical dictionary, I came across, under the heading *Adiantum*, the following: "There is but one species of Maiden Hair Fern indigenous to Britain; it is called by botanists *Adiantum capillus-veneris*, and is used medicinally in coughs and catarrhal disorders." The fern referred to takes its specific name from the little branched stipes which resemble coarse hair, the term *capillus-veneris* meaning "hair of Venus." It and an American species, *A. pedatum*, was considered a remedy for chest complaints, and in France both species are still used for making *Sirop de capillaire*.

*A. capillus-veneris* is a Northern Hemisphere fern so is not indigenous to Australia, but its Southern Hemisphere counterpart, *A. aethiopicum*, grows in most parts of our continent. In a land the home of the *Eucalyptus*

it has not been necessary to test its efficacy in alleviating chest disorders, so there is apparently no danger of it being depleted for commercial purposes.

The generic name, *Adiantum*, is derived from the Greek *adiantos*, meaning dry, given because the fronds do not retain water when it falls on them. The specific term *aethiopicum* was applied because the first specimens were said to come from Ethiopia.

In the Townsville district, *A. aethiopicum* is seen at its best in the monsoon season, for during the dry season it often shrivels and lies dormant until the next rains fall. Sometimes bush fires help in the shrivelling process, but its rhizome, wedged into the damp crevices of rocks, usually survives. The fronds vary in height from nine to eighteen inches, and are three to four times pinnate and the ultimate pinnules being fan-shaped, with a cuneate base attached to a short petiole. All parts, with the exception of the pinnules, are slender, flexuose, and glossy brownish-black in colour. From the point where the pinnule is attached to the petiole, radiate numerous veins, which run fan-wise to the edge of the pinnule. There is no midrib, the veins being equal in thickness. They do not anastomose, but occasionally fork—a sure sign of primitiveness, for as Copeland observes, "*Adiantum* is an old and isolated genus."

The genus is remarkable for the manner it bears and protects its sporangia. In *A. aethiopicum* each pinnule is normally divided into lobes, each lobe being crenated. At the margin, and in the sinus of some of the crenatures, is the indusium, in this case an outgrowth or expanded prolongation of the lamina which curves over bearing the sorus on its under surface. Because of this, when the sorus is ripe, the indusium must open from the inward side. In *A. capillus-veneris*, the sori and indusia are located not in the sinus but on the end of the teeth of the crenatures.

Owing to the fact that the sori are situated on the under surface of the indusia, it is difficult to isolate the spores for microscopic study, because when the sporangia open the indusium shrivels and it, the spores, and many of the disintegrated sporangia intermingle into fine dust. The spores are sparsely covered with short spines, which, however, are not dense enough to obscure the dark shining epispore from which they arise. Some that I planted on the 16th April produced prothalli on the 26th May, a germinating period of 40 days for the autumn season.

According to Bailey there are three forms of *A. aethiopicum*. One is forma *queenslandiae* Bail., which has very dark stipes and an erect growth. But this description can also be applied to the normal species. The second is forma *assimile* (Sw.) Bail., which is identical with *A. assimile* Sw., so called because of its similarity to *A. capillus-veneris*. This form is described as having reddish-brown stipes, whereas *A. capillus-veneris* has brownish-black stipes. The third is forma *variegata* Bail., which has yellow pencilled pinnules. This form was discovered in the Bundaberg district, and is probably a sport.

*A. aethiopicum* does not grow in the dense rain forest, neither does it thrive in the open forest. It prefers situations on the edge of a thick forest where it can get plenty of light but no direct sun rays. In cultivation similar conditions should be aimed at.

There are many garden varieties of this beautiful genus, ranging from the minute *A. micropinnulum* to giant varieties with pinnules a couple of inches in width. They are derived from both the Northern and Southern species, and some of the pedate species which are found in Australia, Asia, Africa and South America.

#### References—

COPELAND — *Genera Filicum*, p.82.

BAILEY — *Comprehensive Catalogue of Queensland Flora*, 190

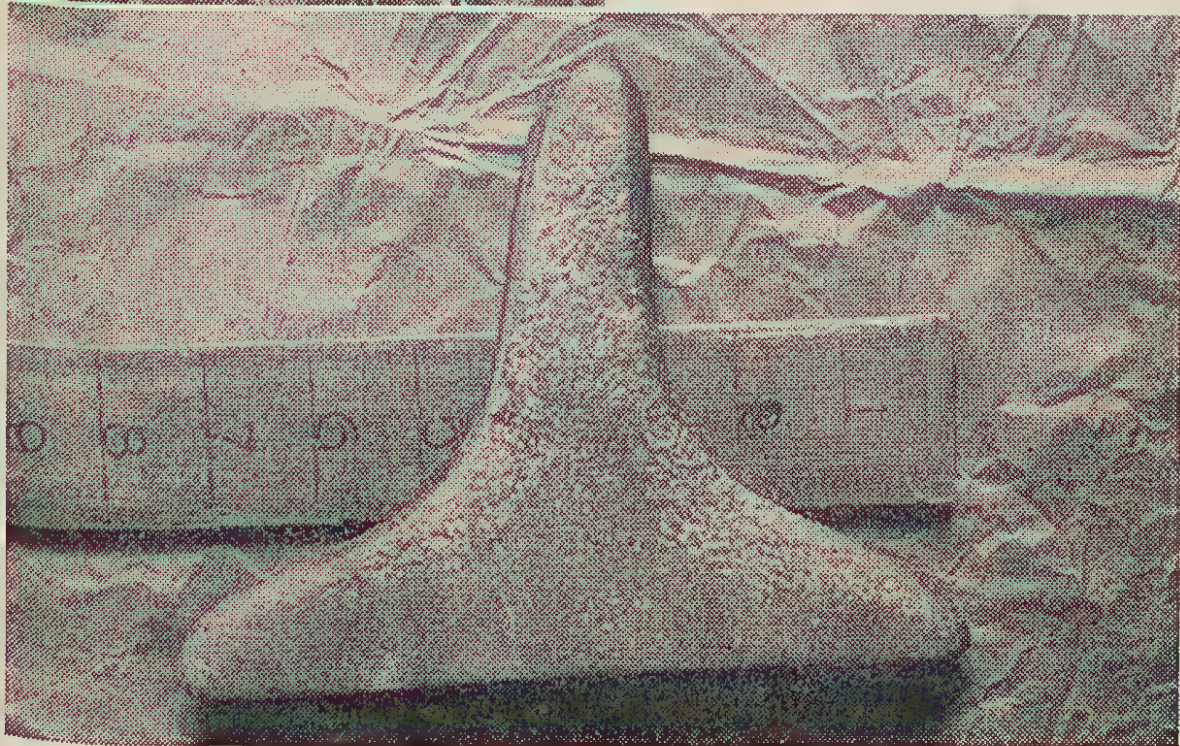


## TWO MORE OOYURKAS

By H. FLECKER, F.R.G.S.A.

**I**N SERIES with 19 other ooyurkas, previously listed, and some of these illustrated and described in the North Queensland Naturalist, No. 108, 1st May, 1954, are two more here illustrated by photographs.

20. Source and origin unknown. Material apparently slaty, roughly pitted all over the two main surfaces and somewhat damaged near the extremity of the tang. The tang is inclined some ten or twenty degrees from the perpendicular. The shoulder is a little less prominent on the inclined than on the opposite side. The base is almost flat, both longitudinally and transversely, smooth and polished with some mostly longitudinal, but scarcely parallel scratchings. It is 186 mm. in length from one side to the other and 16 mm. in breadth being rounded at each extremity. The height of the tang from the



Top Photo No. 21.

Bottom Photo No. 20.

Photos by Chargois Studios, Cairns.



base is 143 mm. and thus is the tallest of the series, and varies in width from about 60 mm. near the base to about 27 mm. near the apex. Its weight is 13 oz.

21. This was found at Josephine Creek by M. Demartini, a farmer of Pawngilly whilst driving a tractor, which may have caused the damage to the tang. Weighing 17½ oz. it is almost as heavy as the 18 oz. specimen described as No. 16. Its composition appears to be of slate, and compared with other specimens is of very rough workmanship and much pitted. Like the preceding specimen its base is almost flat, both from end to end and from side to side, measuring 103 mm. from shoulder to shoulder, but of thickness varying from about 14 to 27 mm. The tang is slightly inclined to one side varying in width from about 70 mm. near its base to 32 mm. near the apex.

## North Queensland Naturalists' Club

Meets at School of Arts, Shields St., Cairns, usually on second Tuesday in month, at 8 p.m.

### MEETINGS

- 10th January, 1956: Decided to enlist police support for action to limit destruction of birds. Mr. Elliott, of Atherton, reports shooting of bower birds and pelican. Numerous exhibits shown.
- 14th February, 1956: Receipt of further £40 in addition to £10 previously sent and added to Crommelin Fund. Decided to secure report of scheme re formation of garden for indigenous plants in South Africa.
- 13th March, 1956: C. T. White Memorial Lecture delivered by Mr. G. V. Taylor entitled, Recent Advances in Botany.
- 10th April, 1956: Announcement of appointment of Mr. W. Hosmer, F.Z.S. to staff of Anthropological Department, University of Melbourne.
- 8th May, 1956: It was resolved to send invitations to a number of like individuals scattered throughout North Queensland to establish gardens of indigenous plants in furtherance of scheme based on Mr. Crommelin's ideas.
- 12th June, 1956: Considerable collection of exhibits shown.
- 10th July, 1956: Resolved to send out circulars to all members and other specially interested outlining new scheme of botanical gardens devoted to the cultivation of native plants.

### NEW MEMBERS ELECTED

- 10th January, 1956: Robert Morton, 156 Martyn St., Cairns.
- 13th March, 1956: Ross Keith Pengilley, Alfred St., St. George.
- 8th May, 1956: L. J. Cady, Sans Souci, N.S.W. J. P. Hing, 69 Sheridan St., Cairns. Russell White (Junior Member), 51 Grove St., Cairns.
- 10th July, 1956: H. A. Bosworth, Muggamuggee, Victoria Estate, Ingham.

574  
N 811.









# The North Queensland Naturalist

The Journal and Magazine of the North Queensland Naturalists' Club  
Established 1932

26th Year

Cairns, 1st March, 1957

No. 117

## JOY OF A NATURALIST

By S. DEAN, Cairns

*I might have been rich if I'd wanted  
The Gold, instead of the friendships I've made;  
I might have had fame, if I'd wanted  
Instead of the Hours I've played.*

*I'm standing today on the far edge of life  
And I'm just looking backwards to see  
What I've done with the years, and the days that were mine  
And all that has happened to me.*

*I haven't much of a fortune to leave  
To those that shall carry my name  
And nothing I've done shall entitle me here  
To a place on the Tablets of Fame.*

*But I've loved the great sky and its places of blue;  
I've lived with the birds and the trees;  
I've turned from the pleasures of silver and gold  
To share in such pleasures as these.*

*I've lived with my friends, and shared in their joys;  
Known sorrow with all its tears,  
I've harvested much from my acres of life  
Though some say I've squandered my years.*

*For much that is fine has been mine to enjoy  
And I think I have lived of my best.  
I have no regrets, as I'm nearing the end  
For the Gold I might have possessed.*

## NORTH QUEENSLAND NATURALISTS' CLUB

## PRESIDENT'S ANNUAL REPORT FOR YEAR 1955-1956

By ALFRED A. READ

IT IS AGAIN my pleasure to present this, the President's annual report on the progress of the North Queensland Naturalists' Club for the year 1955-1956.

First of all I desire to start by thanking the members for the help they have so generously given during the year and for their persistent attendance at the monthly meetings. Most of our members in general are busy people in their own spheres and yet there are not many meetings at which there have not been interesting topics to discuss, and although not all of us can come along to every meeting or do as much as we feel we should like to do, yet all are doing their best in their own ways.

Then again the amount of help that is constantly arriving by post in the way of inquiries and advice from country members, research work constantly being done by some of our specialists appear from time to time in the pages of this journal.

At this stage, I cannot help but point out the wonderful amount of untiring energy being spent by Dr. Flecker in every sphere of the club's activities and more especially in the gathering and compilation of the material for this journal so consistently published, that has made the club so highly regarded throughout the world where scientific information is sought after, and the thanks of this club are due, in no small measure to those untiring energies, and may these energies be with us for a long time yet.

There were 15 new members for the year, which is quite pleasing and although the membership does not grow by that number every year, there is always a steady advance in that direction.

One major activity started by the club this year was the founding of the North Queensland Native Flora Preservation Society. We were able to do this by a most generous gift of £50 from one of our esteemed members of Woy Woy, N.S.W. I refer to Miss Minard F. Crommelin. This donation has been placed in a trust fund under the name of the N.Q. Naturalists' Club Crommelin Fund and is to be used solely for the furtherance of the Native Flora Preservation Society, the aims of which are the preservation and cultivation of North Queensland Native Flora, and although there is a great amount of hard work ahead, there has been considerable spade work already carried out and the great response from so many of our members and outside friends, which augurs well for the future of the society's activities.

I have already made reference to the quality of the material in the club's journal. I would like to draw attention to the source of the supply of a great deal of material which has appeared in the last several issues. I refer now to our own esteemed member, Mr. Stanley F. St. Cloud. He is not merely an orchid fancier, but is fast becoming one of Queensland's orchid authorities, more especially of North Queensland orchids. The amount of study and research that he puts into his chosen field of interest is fast placing him among our topmost authorities and these honours are reflected on to the club not only by personal contact, but through the medium of the journal, which reaches a far greater circle of endeavour beyond these parts.



Another one of our members I would like to refer to in the same strain is Mr. William Hosmer, F.Z.S., who took up the study of Herpetology some time before coming to Cairns a few years ago, when he found a vast untouched field for research that his knowledge of the reptiles of North Queensland has advanced far beyond the ordinary. It was his command of the subject that caused him to be elected a Fellow of the Zoological Society of London.

Mr. Hosmer is now attached to the Department of Anthropology at the University of Melbourne, and although he has not been there long, he has already been sent up to this region on a special assignment, for he arrives this same night flying from Melbourne.

There is not much more I can add, having touched on — to my way of mind — three of our major interests of the club.

At the beginning of this talk, I thanked the members in general for their co-operation and attention during the year. I now wish to thank my officers and committee for their great help and guidance, and for their personal interest to my wife and myself. It has been a very pleasant and harmonious term and I trust that whoever is chosen to take my place for the coming year will undoubtedly enjoy the same help and assistance that has been extended to me.

## MILKING A CATERPILLAR

Winning Essay for H. Flecker Natural History Medallion

By YVONNE HENDERSON

ONE day, whilst I was in the bush near a creek I was surprised to see a caterpillar about an inch to an inch and an eighth in length. Green in colour, with a pair of dark brown spots on its back, it seemed to be annoyed by three or four green ants. On closer investigation, I discovered that these ants were stroking it with their feelers. With the aid of a magnifying glass I noticed on its back a small gland on which was a drop of liquid.

One of the ants noticing this sucked it into its body through its mouth, and during this act, two little rods were pushed up on either side. The amazing feature was that each ant took its turn in repeating this performance. All the while the caterpillar remained very still. As these glands are rather small this can be more readily seen through a magnifying glass, as I found.

This is an unusual occurrence and may only be discovered by chance or by close observation.

## SOME ISOTYPES AND A DUPLICATE SYNTYPE IN THE NORTH QUEENSLAND HERBARIUM, CAIRNS

NEW SPECIES DESCRIBED BY C. T. WHITE

IN our issue No. 114 dated 1st February appeared an article, entitled "Some Co-type Specimens in the North Queensland Herbarium, Cairns." Its contents are grossly misleading in that many of the specimens listed are not actually in the North Queensland Herbarium. In addition, a number of those listed are duplicate paratypes only and these have been omitted from this paper. It has been deemed advisable to rewrite the

article and to ignore the earlier script entirely. It is greatly to be regretted that such a step should be necessary so as to keep in step with accepted taxonomic practice.

Of the following specimens which are stored in the North Queensland Herbarium at Cairns all, with one exception, are ISOTYPES of new species described by C. T. White. The exception is *Hodgkinsonia frutescens* C. T. White. In this case the specimen listed is a DUPLICATE SYNTYPE.

#### CUNONIACEAE

*Ceratopetalum corymbosum* C.T.W., Proc. Roy. Soc. Qd. 53, 216 (1942).  
Cook District: Thornton Peak, alt. 4,500 ft., Dr. H. Flecker (flowers)  
14th December, 1940. N.Q. Nat. Club 7108.

#### LOGANIACEAE

*Gaertnera australiana* C.T.W., Proc. Roy. Soc. Qd. 53, 223 (1942).  
Cook District: Utchee Creek, in "jungle," Dr. H. Flecker (flowers)  
27th Nov., 1938. N.Q. Nat. Club 5313.

#### MYRTACEAE

*Acmena macrocarpa* C.T.W., Proc. Roy. Soc. Qd. 53, 217 (1942).  
Cook District: Between Josephine and Russell Creeks, Dr. H. Flecker  
29 vi 1938, small tree 40 ft., flowers white. N.Q. Nat Club 4986.  
*Xanthostemon brachyandrus* C.T.W., Proc. Roy. Soc. Qd. 53, 219 (1942).  
Cook District: Harvey Creek, F. R. Morris (flowering specimen) 19th  
Nov., 1939. Tree 40 ft., flowers white, fragrant. N.Q. Nat. Club 6440.

#### RUBIACEAE

*Hodgkinsonia frutescens* C.T.W., Proc. Roy. Soc. Qd. 53, 220 (1942).  
Cook District: Yungaburra, in rain forest, Dr. H. Flecker (flowers)  
24th December, 1939. Bush, 4 ft. high, flowers white. N.Q. Nat Club  
6..6.  
*Ixora orophila* C.T.W., Proc. Roy. Soc. Qd., 53, 220 (1942).  
Cook District: Thornton Peak, alt. 4,500 ft., Dr. H. Flecker, 14th  
December, 1940. N.Q. Nat Club 7110.

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## BULBOPHYLLUM MACPHERSONII VAR. SPATHULATUM

By A. W. DOCKRILL

*Bulbophyllum macphersonii* Rupp var. *spathulatum* Dockrill et St. Cloud, var. nov. Differt a typo in floribus maioribus, ad 2.25 cms. usque trans sepala expansa; et praesertim in labello valde spathulato, cum disci lineari acute dilato in laminam apicalem, concavam, late ovatam.

North Queensland: Davies Creek (Mareeba), 20/5/1956.

Leg. S. F. St. Cloud and J. H. Wilkie.

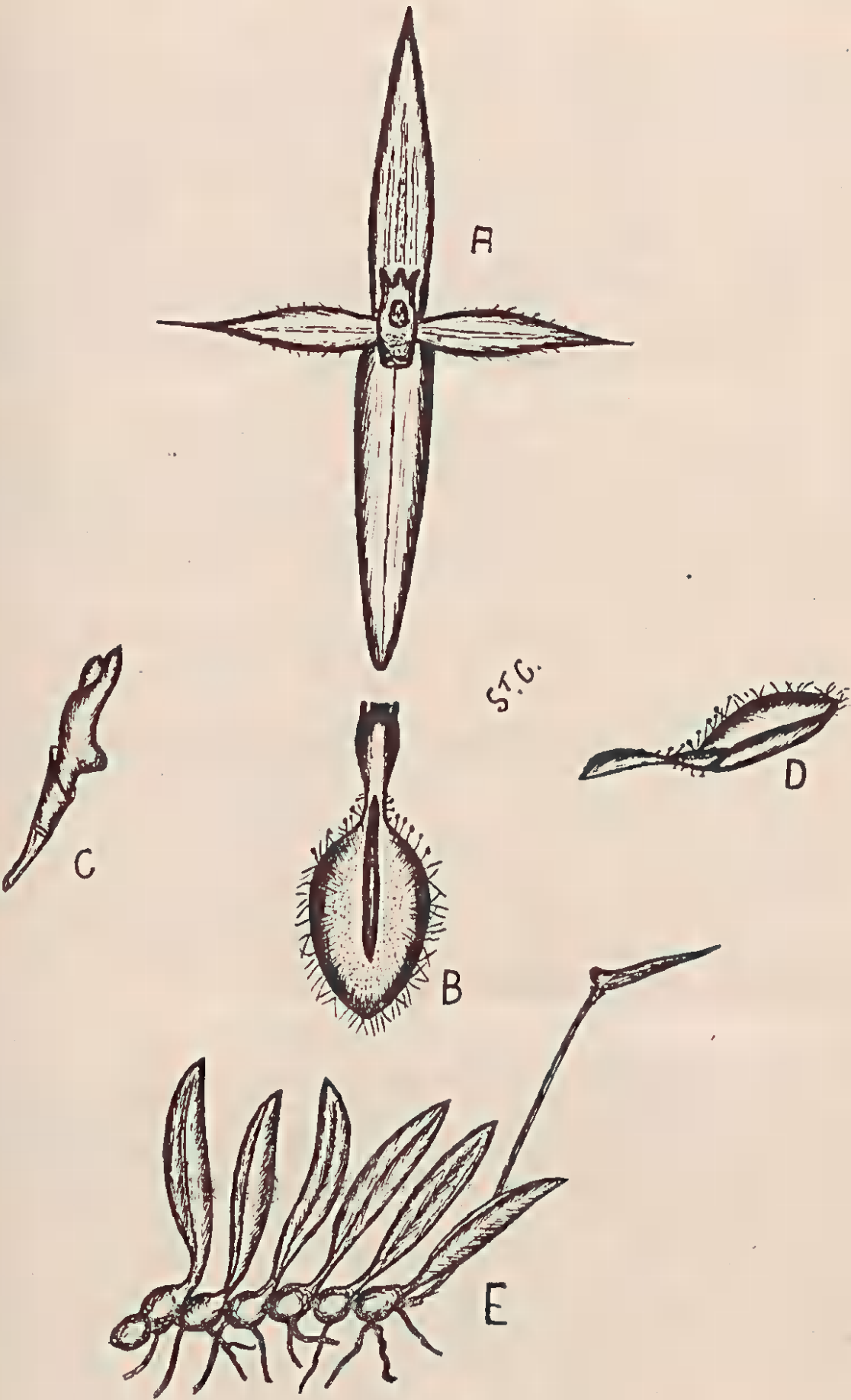
Holotype in National Herbarium of New South Wales.

Differing from the type by its more freely flowering habit, larger size of the flowers (up to 2.25 cms. across the expanded sepals), but more particularly by its distinctive, remarkably spathulate labellum, the linear disc of which is sharply dilated into a concave, broad-ovate, apical lobe.

Dockrill and St. Cloud.

Var. *spathulatum*





## FOUR TREE FERNS OF THE PALUMA RANGE

By KEITH KENNEDY, Townsville

**O**F the various tree ferns growing in Australia, at least half are found in North Eastern Queensland, and some are endemic to that region.

A tree fern is simply a fern in which the rhizome, instead of creeping under or above the ground, has developed an upright or dendroid habit similar to the upright growth of a tree. Some species, instead of growing straight up, lie prostrate for part of their length then turn upwards, indicating the evolution from the prostrate rhizome to the erect. This method of growth is known botanically as procumbent, and can be seen normally in *Dicksonia antarctica* Labill, of temperate Australia, but in North Queensland, as far as I know, the tree ferns are all erect. In New Zealand there is a procumbent tree fern, *Cyathea colensoi*, in which the caudex for part of its length is prostrate and sends down roots like a giant rhizome, the remainder of the caudex then turns upwards and rises to three or four feet.

On these ferns with a creeping rhizome the fronds can be spaced out, but on an erect rhizome the fronds spring from or near the apex. This produces the basket habit as seen in tufted ferns, and if persisted in the rhizome becomes dendroid, rising from a few to many feet above the ground. *Blechnum cartilagineum* Sw., plentiful near Paluma, is a dwarf example of the dendroid habit, while *Dicksonia youngiae* Moore in the same district is a giant example.

Tree ferns are found only in the eastern part of Australia, where they flourish from the tropical north to the south of Tasmania. This range indicates that it is not entirely temperature that governs the dendroid habit, but conditions such as moisture and forest canopy. Nevertheless temperature has some influence, for it is a fact that in the tropics they grow only at high elevations, while down south they grow at sea level.

The dendroid habit can be assumed by different genera, but in North Queensland the majority of the tree ferns belong to the genus *Cyathea*.

The most prevalent tree growing around the township of Paluma is *Cyathea rebecca* (F. Muell.) Domin., named by Baron von Mueller after a lady friend. It is only found in North Queensland, and is essentially a tropical fern. I do not know of any record of it being found outside Australia. It is only bipinnate, so has not the fine-cut appearance of other tree ferns. The pinnules vary from entire, slightly incised, to deeply incised. The bases of the fronds are persistent for about a third of the way down the caudex, the remainder of the caudex is clear. It is soboliferous, and in many examples several shoots arise from the base, presenting the appearance of a cluster of ferns.

On the range not far from Cloudy Clearing is a start of the light green *Cyathea robertsoniana* (F. Muell.) Domin., which can be readily identified by the tripinnate fronds, the pinnules of which are minutely and thickly villous, and feel like thin flannel to the touch. Generally, the light leaved plants cannot endure the sun's rays so much as those with darker leaves, but actually in this case, *C. robertsoniana* can endure sunlight better than the coarser leaved *C. rebecca*. The reason for this is the finer ultimate pinnules which offer a smaller surface to the sun, and the villous covering which acts as protection and also checks evaporation. The fronds do not form a true crown, but are somewhat distantly spaced on the end of the stem, which is probably an inheritance from the times when the caudex was prone. The ultimate pinnules are lobed almost to the costule, and the lobes are toothed. On the fertile pinnules, the sori are sunk in depression, one on each tooth, the distal end of which curves over slightly to form



partial false indusium.

Not far from the turn-off near Star Valley View is a fine specimen of *Cyathea cooperi* (F. Muell.), once known as *C. brownii* Domin. Hidden in dense forest, I came across it by accident. Not so common here as elsewhere in the North, it can be identified by the few dried fronds attached to the caudex just below the crown. These fronds can be easily detached.

*Dicksonia youngiae* Moore is also not common in the district. Although a tree fern, it has no relationship to the family *Cyatheaceae*, but belongs to the family *Pteridaceae*. The sori of *Cyatheaceae* are dorsal, and either exindusiate or have a very partial indusium, but the *Dicksonias* have sori which are marginal with large two-lipped indusia. One lip is a false indusium, formed by the overlapping of the pinnule edge, the other lip is a true indusium arising from the surface of the pinnule. Another difference between *Cyatheas* and *Dicksonias* is that the stipe bases of the latter are covered with hairs or bristles, while the former have scales or ramenta and only sometimes hairs.

Tree ferns are not of economic use, their value is aesthetic, but they have been utilised for various purposes, as I saw once in Gippsland, Victoria, where a corduroy road over swampy land was made by placing tree fern trunks side by side. When in New Zealand I was informed that the ancient maoris used to bake the pith and lower part of the stipes of *C. medularis*, called by them the ponga, the result being said to taste like rather poor quality apples. According to a medical authority the same species furnishes a gum that can be used as a vermifuge, but it is not often used.

## NORTH QUEENSLAND NATURALISTS' CLUB

Meets at School of Arts, Shields St., Cairns, usually on second Tuesday in month at 8 p.m.

### MEETINGS

14th AUGUST, 1956: It was decided to support the North Queensland Local Authorities' Association in the appointment of a full time ranger under the Fauna Protection Act.

11th SEPTEMBER, 1956: Annual General Meeting. Presidential Address was read by Mr. A. A. Read. Officers elected were President, Mr. A. A. Read; Vice Pres., Dr. H. Flecker, Mr. S. Dean, Sgt. H. Ziegenfusz; Hon. Sec., J. Wyer; Asst. Sec., D. R. Peiniger; Committee, Messrs B. Cummings, E. Fielder, N. Coleman; Hon. Treas., Mrs. H. Smith.

Mr. S. Dean moved that the club sponsor an exhibit for the Trades and Industries Fair in Oct., 1956, to make known the N.Q. Native Flora Preservation Society. Mr. S. Dean also suggested that action be taken to limit the use of .22 sporting rifles except for properly authorised purposes.

9th OCTOBER, 1956: The H. Flecker Natural History Medallion was presented to Miss Yvonne Henderson, of Edmonton. Exhibits included live dragon lizard, *Gonyocephalus boydi*; Barbel tortoise, *Emydura longicollis*, and python, *Liasis childreni*, also alive, etc.

13th NOVEMBER, 1956:

25th NOVEMBER, 1956: Excursion to Mr. R. Fenby's farm property at Clump Point, 30 miles east of El Arish. The weather was particularly fine and the outing most enjoyable. Mr. Fenby has for many years succeeded in preserving his rain forest estate. Of particular interest was a tall cycad, *Macrozamia hopei*, well over seventy feet high. A tame cassowary roamed over the property, visiting the homestead to partake of chopped up coconuts which it greedily devoured.

11th DECEMBER, 1956: Toward the close of the meeting, it was reported that two people were stung at the City Baths by Irukandji. A team from the club decided to strain the water while letting it out to look for organisms which might be responsible. The result was a large collection of plankton which turned out to be barnacle larvae and which are probably not responsible for the stings.

#### NEW MEMBERS

The following new members were elected and welcomed:—

- 11th SEPTEMBER, 1956: Messrs V. M. Reilly, Box 136, Cairns; D. A. Pritchard, Holmes St., Stratford.
- 13th NOVEMBER, 1956: Dr. J. W. Markwell, Lynch St., Ingham; Messrs R. L. Shepherd, Box 379, Ingham; Bert Yeldham, Box 190, Ingham.
- 11th DECEMBER, 1956: Mr. Crichton, Mulgrave Shire Council, Gordonvale; Mr. A. J. Castle, Mrs. A. J. Castle, David Castle (Junior Member) all of Passchendale St., Stratford.

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### PUBLICATIONS BY N.Q. NATURALISTS' CLUB

1. CHECK LIST OF NORTH QUEENSLAND ORCHIDS .. .. PRICE 1/-
2. MARKETABLE FISH OF THE CAIRNS AREA .. .. PRICE 1/-
3. CHECK LIST OF NORTH QUEENSLAND FERNS .. .. PRICE 1/-
4. EDIBLE PLANTS IN NORTH QUEENSLAND .. .. PRICE 2/-
5. LIST OF BIRDS OCCURRING IN NORTH QUEENSLAND PRICE 2/-
6. LIST OF AUSTRALIAN DRYOPIDAE .. .. PRICE 6/-
7. CHECK LIST OF NORTH QUEENSLAND ORCHIDS  
(Second Edition) .. .. PRICE 2/-



# The North Queensland Naturalist

The Journal and Magazine of the North Queensland Naturalists' Club  
Established 1932

26th Year

Cairns, 1st September, 1957

No. 118

## REQUIEM

**WE ARE A FORTUNATE PEOPLE!** To us in our time has come the privilege of knowing Hugo Flecker, and now that he has set out on the journey upon which we must all some day embark, we mourn . . .

But should we?

I remember, many years ago, Doc told me that when a Roman builder had completed his work (usually in the winter, when the Italian sun was not at its strongest), he had to give a certificate that the edifice was "Sine cera." In effect, that the building was "without wax." A guarantee that in the building no wax had been rubbed into faults and cracks in the marble which would melt and run out in the summer's sun.

"Sine Cera" — "Without Wax" — Sincere . . .

And sitting here at my typewriter, on just a day as the Doctor would have loved, with a blue haze on the hills, a pair of sunbirds setting up housekeeping on the loop of cord outside my window, the "chug-chug" of a pheasant-coucal coming in from a distant paddock, and the raucous cry of a spangled drongo vyeing for supremacy with the call of a friar-bird, I must apply Doc's own yardstick to my sentiments, even as I mourn his passing.

Am I sincere? Or am I being selfish in that I have no longer an inexhaustible fund of knowledge to draw on, without ever having the necessity of consulting a text-book?

Or have I really benefitted by having had the privilege of knowing such a man, in whom sincerity was a natural virtue?

If I have received something from the Doctor whilst he lived — if my life has been enriched by knowing him — then I must share the legacy he left.

A legacy of service. The privilege of perpetuating his memory by making his brain-child — the Club — even as he would have wished it to be.

It would be easy to write a flowery obituary for the Doc. To compose a panegyric for a great man, but, having known him, such would be superfluous.

Words are just words. It is by the sincerity of action we can pay the most fitting tribute to a sincere and humble friend whose very humility emphasised his greatness.

The sincerity of action . . .

Each must take up some part of the burden he laid down. The botanist, the entomologist, the arachnidologist, the ornithologist, the marine biologist, the conchologist, the herpatologist — even the humble journalist can, with just pride, strive to attain the perfection in his chosen field so that the Club, benefitting by the example he set for us, will become even as he envisaged it over a quarter of a century ago — an authoratative body, recognised at world status.

It may, in fact it will, take the combined and organised efforts of up to ten specialists, assisted by all members of the Club, to carry on the work which Doc performed with apparent ease.

It is a legacy of work, of dedicated work, and a task which we, his friends, should be proud to undertake. — J.O., 1/8/57.

## PRESERVATION OF REPTILES

By WILLIAM HOSMER, F.Z.S.

**T**HE general interest in snakes has been gradually increasing since the recent publicity given to Australia's deadliest snake, the taipan. Specimens, living and dead, come from many localities in the north for positive identification. Unfortunately, many of the specimens are badly preserved, and consequently have to be discarded instead of being retained in the evergrowing museum collection. Quite recently a python of four feet was coiled tightly into a coffee jar and covered with methylated spirits, then transported many miles before reaching Cairns. If the sender of that python had been at the receiving end, I am sure that he would appreciate a few hints on the correct procedure for permanent preservation. The following method will be found most satisfactory. Although a little more complicated than the procedure quoted above, if a specimen be worth the trouble of preservation and shipment at all, then it is worth the care necessary for permanent storage as a museum specimen.

Specimens are best killed by drowning them in the preserving fluid, keeping them submerged in a cloth bag, or by injecting a little preservative in the region of the heart with a hypodermic syringe. Other methods not known to me are probably as effective or even more so, but whatever form is used, remember do not damage the specimen, particularly the head, as damaged specimens are difficult to check.

After killing the specimen, it is essential to inject preservative into the belly, starting from the tail and gradually working up the body to the neck, when fluid begins to run from the mouth, indicating that enough preservative has been injected. Should a syringe not be available for this purpose, a number of small slits may be made with a razor blade to ensure entry of the preservative into the body cavity. These slits should be made transverse to the belly scales, and should be about half as long as the interspaces between each cut. Remember that one or two slits are also necessary in the tail of any specimen exceeding two feet. After having done that part of the operation, place the specimen **UPSIDE DOWN** in a tray or dish of adequate space, and cover with the preserving fluid. Force out as much air as possible by running the fingers along the belly, pressing down from the tail end first. Remember, air pockets in the stomach are the chief cause of decomposition in preserved specimens; thus the removal of air is of prime importance. This having been thoroughly accomplished, arrange the specimen (still belly side up) in a suitable position, and allow to remain for a few hours. When re-examined, the specimen should be partly set or stiffened. The next procedure is to decide on a suitable container, a wide-mouthed jar or bottle will be found best; a fruit preserving bottle or pickle jar is ideal. The specimen should be carefully placed within so that there is no pressure of the body on the glass, and there should be a good amount of preservative in proportion to the volume of the specimen.

Now comes the most important part of the whole operation, so important, in fact, that without it, the rest of the work is in vain. I refer to "tagging" or labelling of the specimen. The rarest specimen is of little use to science if unaccompanied with the required data. Such a simple matter, yet so often omitted. The necessary data required is:—

(1) Locality in which the specimen was collected, which may be rendered e.g., 2 miles north of Hartley Creek, or 3 miles west of Smithfield Post Office, etc.

(2) Date, and if space permits, time of day on which specimen was collected.



## (3) Collector's name.

All of which should be written in PENCIL on a card or piece of paper and placed INSIDE the container. Outside labels are frequently lost, torn or damaged. If two or more specimens are included in the same container attach the label to each specimen by threading cotton through one of the belly scales and tying label securely.

With regard to the type of preservative to use, the most common, and easiest to procure is methylated spirit. Ethyl or grain alcohol is the preservative mostly used by museums for permanent storage, but the high cost of this fluid places it out of the reach of most private collectors. Formalin is most economical, since it should be broken down to 1 part formalin to 8 or 9 parts water for most specimens. The chief disadvantages are that it hardens the specimen, thus making examination difficult, also it causes the eyes of the person making the examination to run and smart. The head, or rather the head and two or three inches of neck are best preserved in cases where the specimen is too bulky for total preservation.

Once well preserved, the spirit may be emptied out of the container, and spirit moistened rag or absorbent cotton packed around the specimen for the purposes of transportation.

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## A RARE TREE FERN

*Cyathea celebica* Blume

By KEITH KENNEDY, Townsville

IN THE Check List of North Queensland Ferns, published by the North Queensland Naturalists' Club, is listed a tree fern, *Cyathea arachnoides* Hook., from Rockingham Bay, collected by Dallachy. That specimen was gathered many years back in 1867, and sent to von Mueller in Melbourne. Many years later, in 1909, another specimen was collected by R. F. Waller from the Evelyn Tableland rain forest. Another long passage of years, and then in 1954, Mrs. P. R. Messmeron, on a visit from Sydney, collected a specimen at Kidner's Creek, near the head of the Beatrice River. Following a request from Miss Mary Tindale, of the National Herbarium, Sydney, to keep a look out for this tree fern, I was fortunate enough at the end of 1956 to discover a fern growing 2900 feet up on the Paluma Range, and sent a frond down to the Herbarium.

The specific name *arachnoides*, which means spider web resemblance, because of the appearance of the underneath parts of the fronds are covered with white and rust coloured cob-webby hairs, was given in "Synopsis Filicum," by Hooker and Baker in 1865, but it is now known that it was previously recorded by Blume from Ternate in the Molucca Islands, when he named it *Cyathea celebica*, probably under the impression that Ternate was part of the Celebes Group. Under the scientific law of priority, *C. celebica* Bl. is now recognised as the correct name. According to Tindale in "Cyathea of Australia," the original material (holotype) is in the Herbarium at Djakarta (formerly Batavia) and is labelled in Blume's handwriting.

*C. celebica* has also been recorded from New Guinea, whence it probably migrated to North Queensland.

F. M. Bailey in "Queensland Flora," mentions that he has never seen any Queensland specimens, and took his descriptions from Bentham who, with von Mueller, examined Dallachy's specimens, which, however, were not fertile.

The largest one which I saw on the Paluma Range was not as tall as those reported from the Moluccas, which were said to reach a height of ten metres. It measured only 9.7 centimetres to where the fronds branch, but it was a mature plant for the fronds were covered with sori. Its diameter was thick in proportion to its height, being 17 centimetres, giving it a much more robust appearance than the slender *C. robertsiana* and *C. rebecca* growing in the vicinity. The stipes were armed with strong straight and curved spines, probably evolved for protection against browsing animals, and these make it difficult to saw off the base of the stipe as had been requested by the Herbarium authorities.

## HOW WE CAUGHT THE TAIPAN

By J. McLOUGHLIN

ON ONE OF THE FIELD DAYS of the North Queensland Naturalists' Club, I was fortunate enough to take part in the capture of Queensland's well-known and most feared snake, the Taipan, *Oxyuranus scutellatus* Peters. The other four participants of the drama were Messrs L. Robichaux, A. Smith, J. Brophy and W. Hosmer.

We were diligently searching for reptiles along the upper reaches of Davies Creek, when, on hearing a slight movement in the brush I turned to see a large taipan gliding swiftly towards a large outcrop of rocks. My excited shout: "Taipan!" quickly brought my colleagues to the spot. Mr. Robichaux made two attempts to catch hold of the now fast-moving reptile's tail, but each time, the snake was a little swifter in movement. It was at this stage that I did a very foolish thing that nearly cost our much coveted prize its life. Observing that both Mr. Robichaux's attempts to secure the snake's tail were unsuccessful, I threw a small steel bar, which I had previously used to lift large rocks, and dealt it a glancing blow on the body. The snake turned and struck savagely at the bar, then quickly disappeared under a large rock. We then armed ourselves with forked sticks and arranged ourselves at various vantage points around the rock. I was advised to move back and keep my friends posted of the snake's movements. This I did, and to my surprise, looked into the face of a very annoyed taipan. On seeing a human being so close, it quickly drew back into the dark recess of the crevice, but I could still see its lower jaw moving nervously in a chewing motion.

It was unanimously decided to force the snake into the open. A long stick was inserted into the crevice, and as I was still chief observer, I informed Mr. Robichaux that the reptile was heading his way. The taipan moved slowly at first, then came out swiftly, striking repeatedly at Mr. Robichaux as it tried vainly to escape. Seeing its path blocked, it again went under the rock, only to reappear at the opposite end. We quickly converged on the snake's new escape point, and this time it was securely "pinned," while Mr. Hosmer picked it up and safely bagged it.

We were all very satisfied with the outcome, but unfortunately the taipan only lived two days in captivity before it died.

I think it worthy of note that all the attacking was done by us, and the snake only proved aggressive in defence of its life, as do all our other reptiles.

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MEMBERS' EXCHANGE — BOTANICAL: Mrs. L. S. Cady, "Milford," Saddleback Road, Kiama, N.S.W., wishes to contact N.Q. Members.



WINNING ENTRY OF THE H. FLECKER NATURAL HISTORY  
MEMORIAL MEDALLION FOR 1957

## YELLOW - BREASTED SUNBIRD

(Cyrtostomus frenatus)

THIS SMALL BIRD, a common sight to any North Queenslander, is also found in New Guinea, the Solomon and Admiralty Islands. Very few days have passed without my seeing these gay sprites in the vicinity of Cairns. The local name of "Weaver" is derived from the way it weaves cobwebs into its nest.

The sunbird is a type of honeyeater, and is about four inches long. With an olive green back and wings, a yellow stomach, and a dark, metallic blue breast forming a bib (which is exclusive to the male), the "Weaver" presents a picture of vivid beauty.

They hover over flowers in the true humming-bird style, while the slim, curved bill darts home for the nectar. Insects, caught on the wing, also form a large part of their diet.

While perched, their song is a short, pretty, tremulous warble, and a quick twitter is often uttered before they leave a twig.

The birds frequently build their nests near houses, and take little heed of the occupants. The nest is an oval-shaped, hanging structure, and is usually suspended from a twig, a piece of wire or rope, or a clothesline, at varying heights. It is made of pieces of bark, dry grasses, rootlets and dead leaves, which are closely woven with cobwebs. It is lined with fine grass, or any smooth material available. The birds enter through a hole well up on the side, which is overhung by a small protective hood. A cobweb tail hangs from the bottom of the nest.

Two or three eggs are laid, and are pale green with brown and light red spots.

At my last home, on the Barron River, a pair built annually on our open verandah, but their brood was repeatedly taken by snakes. Late one night, the sitting bird flew frantically around the verandah, until she managed to exit through the louvres. We placed a layer of cotton wool over the two young ones, then went back to bed. Fifteen minutes later another commotion began, so we lit the lamp and went to the verandah. The nest hung from a piece of rope, some two feet from a nearby clothes line. A large tree-snake was balancing on the line, and stretching across to the nest. As we watched, he sniffed all round the nest, then put his head inside. But he pulled it out again, and, I think, was rather puzzled as to the whereabouts of the brood. Unfortunately, when my elder brother attacked the snake with a broom, the nest was bumped. It fell. The young birds were still alive, so we patched the nest as much as possible, put the birds in, and put another layer of cotton wool over them. The parent birds came back at dawn, improved upon our mending, and continued as if nothing had happened. When on the nest, the female bird would let us touch her, as she sat with her head protruding from the entrance.

A yellow-breasted Sunbird is the most gay, beautiful bird imaginable.

JOE MACDOUGALL (14),  
100 Bunda Street,  
CAIRNS.

## THE INITIATION CEREMONY OF THE TJAPUKAI TRIBE

By DOUG SEATON

**T**HE TJAPUKAI PEOPLE occupied an area bounded by the Barron River from south of Mareeba to Kuranda and north to Port Douglas. They were rain forest people and the remnants of the tribe form the nucleus of the Mona Mona Mission. There are only three initiated men left that I know of, and they were initiated over forty (40) years ago, and as far as I can gather, were the last to be initiated.

The boys of the tribe were taken in hand by the father, grandfather or uncles, and taught bushcraft and hunting, and at the age of about 16 years they were given notice of the initiation. Extra food was gathered, special biyou (huts) were built, and the messenger with his wongaluken (message stick) was sent out to invite prominent men of friendly tribes. The leaders of the Yirkandji (Cairns area) used to travel up the Barron River by canoe to the place of initiation, which was a pool of the Barron just about where the cane train crosses the river, and the pool is referred to these days by the old people as the "Storywater," because this pool is the place where Damurrai had his legs snapped off by a crocodile in the Twapukai creator legend.

The boys were encouraged to feed heartily in starchy foods and were walked off their feet until they were ready to drop from weariness. Women and children were not allowed at the ceremony and they kept up a wailing at some distance from the event in the belief that it would prevent the boy from feeling pain. Each boy was allotted two to four holders and the men assigned to the job were near relatives, uncles, etc. The mother's elder brother was quite an important person during the ceremony. The boys were laid across the knees of the maternal uncle or some other close relative and the tribal marks were cut across the chest and upper stomach area by an uncle or other close relative using a sharp piece of white quartz called a parpulla. This parpulla was about 2 by 1½ inches in size, very thin, and had a backing on the upper edge of wax colored black with powdered charcoal. During the cutting the men kept up a churring noise so the boys would not feel the cutting — any blood from the cuts was carefully wiped off with a piece of paper bark to prevent it running into the earth where evil spirits would get it.

The boys then had the fat of the ningurra (freshwater eel) rubbed into the cuts to assist healing (no ashes or clay were placed in the cut by the Tjapuki people as was customary in other tribes). The boys were then compelled to remain in a crouched position during the healing and were fed on a diet of soft foods. The boys were given a short stick to scratch themselves with if they developed any itchy spots—they were not allowed to use their hands for scratching. They were not allowed to have long sleeps because of the belief that they might dream of a rainbow changing into a snake and this dream would cause them to start and so disturb the cuts. Sometimes the boys were also cut on the bicep just below the shoulder. Cuts across the chest and stomach were called Wattder and those on the upper arm Doomore. After the cuts had scabbed over (my informant Deeka, white fellow name Willie Courtney told me that he had healed up in one week), the boys were then taken into the "story water" and the scabs were scrubbed off with sand by the old men, the boys were then considered to be men and later entitled to be married.



Until they were married they were not allowed to eat any meat, but could eat the flesh of fish or eels. The courtship, apart from arrangements made by parents, consisted of the man making presents to the girl's parents of spears or some useful utensil. These gifts were quietly placed outside the parents' hut. The actual marriage ceremony consisted of a sham fight so the buck could show his prospective bride what a great fellow he was, and a warrimar (dance). The girl and her mother then lit a fire in front of a hut they had previously built, the man took his bride by the hand and entered the hut, and the ceremony was over.

Any scars I have noticed on initiated men were only about one-quarter of an inch wide and raised up about the same. They extended almost across the chest and stomach, and there does not seem to be any special number of cuts.

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## GEOPELIA PLACIDA

By S. DEAN

NEVER to my knowledge has mention been made in the North Queensland Naturalists' journal of a most friendly bird that we in and around the Cairns district enjoy the constant companionship of.

Arriving in Cairns at the beginning of the year 1925, I was much intrigued by the sound of what was presumably a bird call which had a two-tone effect, sometimes with a bell-like clarity. At that time my hearing was fading from the effects of war service, and my sense of direction was confused, and the sound persisted in my thoughts and even into my slumber, so that it was some little time before I located the caller. Since then, the peaceful dove, as it is most usually named, has probably appealed to me more than any other of the many feathered friends I have in the Courthouse gardens. Though not an ornithologist, I am naturally a bird lover, as the birds are mainly the gardener's friend and I have visits from many, from the minah and willie wagtail right through to the larger jaborie and ibis. But the peaceful dove is always an attraction to the local residents and visitors from the south, not only for its call, but because of the mating cock's approach to the hen, with its constant bowing, with tail spread.

Though wary of possible danger, sometimes a crouching domestic cat, it will still flit and walk around with an aplomb that takes no notice of human approach. But though one may feed the ordinary rock pigeon on and out of the hand, one cannot do the same with the peaceful dove, unless it be a fledgeling from the nest. Therefore, I consider my close conquest worth reporting. A fully-grown Frangi Pani (*Plumeria*) which was at the side of the Courthouse, and which was blown over by Cyclone Agnes in 1956, had a centre crotch of three sturdy branches, and annually it provided a nesting place for the peaceful doves. Despite the activity of the adjacent court, the sitting hen would quietly carry on with its task of incubation, and I would occasionally approach on the blind side of my quarry and offer my hand with a few crumbs therein.

Over the years it is not creditable that it was the same hen that returned to this nest, but possibly grown fledgelings with the homing instinct. And then came the notable day when this particular hen, after repeatedly rejecting my advances, finally deigned to delightfully peck at a few crumbs so invitingly held out to her. For the rest of the nesting period I am convinced that milady looked forward for my visits of peaceful offerings. But came the cyclone and the end of an annual home for the peaceful dove, plus an attraction for me.

## BARKING SPIDERS

*Selenocosmia crassipes* - Aviculariidae

By MAED MONATH

ONE of our ground spiders, *Selenocosmia crassipes*, was described by Professor Whitman, of Hobart — one of Australia's foremost authorities — as being the largest spider ever found in Australia. One was discovered at Bowen by a German lady naturalist about 1862. It belongs to the family Aviculariidae and is found among rocks, under chaffcutter boxes, and in other hiding places on the ground. Over a long period we have had hopes of securing a male, but up to date no male has been brought in.

The outer surface of their mandibles is furnished with spines and the inner surface is furnished with a set of horny plates of varying thickness and length, which are thrown into a state of vibration by being rubbed over the spikes on the mandible. This organ is equally well developed in both males and females and appears in the young soon after they emerge from the eggs.

When these spiders are irritated or alarmed, they raise themselves upon their hind legs and, by waving the palpi, scrape the plates against the spines on the mandibles, and produce a sound which has been described as resembling the dropping of shot upon a plate. The name barking spider has been applied to it on this account. It is probable that the sound thus produced acts for the benefit of the spider in warning other creatures.

The largest of another group, which includes the bird catching spiders, occurs in the northern parts of South America, where specimens almost equalling a rat in size are met with. They are nocturnal and will destroy and eat any living creature weak enough to be overpowered. Small birds have been found in their clutches.

## DOCTOR FLECKER

IN RETROSPECT

By STAN DEAN

If intent of purpose, applied in good faith  
By man, judged such shall he be.  
If his knowledge creates an aura, a wraith  
It is then, in this capacity  
He then has attained, his ultimate aim  
Though his earthly efforts, be done  
Lost to us; his teachings, to us still remain  
Forever denied by none.  
We, The North Queensland Naturalists' Club  
And Committee, who sat in commune  
So oft with such a man, as a hub  
In conclave, not always attune  
But nonetheless view, a vacant chair  
With thoughts, hard to reconcile.  
" 'Tis a trust left to us, a responsible care  
Whilst we feel, his indulgent smile  
As we who nurse, this child of his brain  
We believe he, would not mock  
Our intent of purpose, to carry on.  
We'll do our best, Old Doc.



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## NOTES ON THE GENUS VARANUS

### (Monitor Lizards)

BY WILLIAM IRVINE

SPECIES	Date of Capture	Length ft. ins. mm.	LOCALITY	SITUATION
Varanus varius	26/12/56	4 12 1258	Norah Hd., NSW	In Gum Tree

This specimen, a female, was first observed on sandy soil, approximately 50 yards from swamp No. 2 (Monitor Swamp), Pelican Point, Norah Head, in mid-afternoon. Specimen ascended tree when disturbed, and was captured by noose from a neighbouring tree and dropped to ground. She ascended another tree, breaking noose. The branch was chopped and the monitor ran into the swamp, catching trailing noose on an underwater branch, when she was caught and bagged.

The monitor was sent to the residence of Mr. Wal Lorking, for a period of 77 days, during which she laid nine eggs. Unfortunately, these were laid under a board and shrivelled up before discovery.

SPECIES	Date Received	Length ft. ins. mm.	LOCALITY	SITUATION
Varanus gouldii	4/5/57	3 10 1182	Unkown	—

This Gould's Monitor was presented to me by Mr. David McPhee. It is one of the largest specimens of this species I have seen.

When placed in a pit, this lizard went straight to the water dish and stayed in it for a considerable period.

Owing to the pit having a hole dug through a side by Monitor No. 1, the gouldii was taken out and placed in a cage.

On Saturday, 16th November, 1957, I observed the lizard having a drink. The time was 2.45 p.m., the temperature being 78 degrees F. The monitors were fed and later on in the morning the meat had been eaten, and on examination, most of it appeared to be eaten by this specimen. Another reason why I think this lizard is eating, is its aggressive attitude when handled, and is normally very docile.

On Saturday morning, 21st December, this monitor ate all the meat thrown into the cage, and on the same night was placed in a vivarium specially built for monitors and next morning was found in the water dish.

The monitor is very wary of the two varius, as one accidentally bit it the night they were placed in the pit, and whenever one comes near the gouldii sways on its hind legs, with the front legs clasped together just brushing the ground, also hissing violently.

It has also dug a hole under a rock and earthen ware pipe for a shelter.

Articles of interest to Naturalists are welcomed by the Publications Committee. Manuscript should be typed if possible, double spaced, and written on one side of the paper only. Address all correspondence to The Secretary, Box 991, CAIRNS.

SPECIES	Date Captured	Length ft. ins. mm.	LOCALITY	SITUATION
Varanus varius	6/10/57	4 4 1322	Norah Hd., NSW	In Paperbark Tree

The specimen, a male, was observed running along the sandy soil approximately 10 yards from the edge of swamp No. 2, at approximately 3 p.m. The monitor was heading for a large paperbark tree, which it climbed with no apparent effort.

Specimen noosed while lying on a branch about 30 feet above ground level, and was captured without much trouble for this species of lizard.

The monitor was kept in a canvas bag until the following Monday, when he was brought home and placed in an enclosure with a Gould's monitor (*V. gouldii*). The varius created quite a disturbance during the night.

On Friday, 11th October, he was heard hitting his tail against the steel side of the cage and on the 19th October, still had not settled down.

Sunday morning, 22nd December, at 7.25 a.m. this specimen was observed drinking, after which he went for a stroll along the sides of the large vivarium in which he was placed the night before.

SPECIES	Date Captured	Length ft. ins. mm.	LOCALITY	SITUATION
Varanus varius	7/10/57	4 7 1397	Norah Head	In Banksia Tree

This monitor, a well-marked male, was first seen on the eastern side of swamp No. 2, by Mr. Ronald Webber, who promptly "treed" the specimen, and called Mr. Frank Bower and myself, who were on the western side of the swamp, and informed us of the catch.

The monitor's position was noted and Mr. Bower ascended the tree, a *Banksia*, and slipped a noose over the head of the specimen, which immediately advanced down the tree and tried to attack Mr. Bower. I ascended the tree and secured a grip on the neck of the specimen, which was brought down by both Mr. Bower and myself, and placed in a canvas bag with another monitor caught the previous day.

The time of capture was approximately 10 a.m., the monitor's position being on a horizontal branch about 20 feet above ground level, the tree being roughly 20 yards from the edge of the swamp.

That night the monitor was placed in a cage with the other monitors.

He is still nervous, and hides in an earthenware pipe when anyone approaches, and on Sunday, 20th October, did this.

On Saturday, 7th December, whilst opening the cage to fill the water container, he came at me and tried to escape but did not succeed, so he went up the other end of the cage and turned to face me. He stood with his forelegs up as high as possible and arched his neck and hissed violently.

SPECIES	Date Captured	Length ft. ins. mm.	LOCALITY	SITUATION
Varanus varius	3/1/58	4 3	Norah Head	In Paperbark Tree

This male was observed ascending a paperbark tree, at 12.15, on the eastern side of swamp No. 2.

Three Sacred Kingfishers (*Halcyon sanctus*) drew my attention to him whilst I was still about 100 yards away, by giving warning calls.

The specimen was noosed about 25 feet up, and a few minutes after capture, while I was still descending the tree, he disgorged a rabbit kitten. He has a cut about threequarters of an inch long and about four inches in front of his off-side hind foot, which I am treating. He is very nervous, and if he notices anyone observing him he runs into a shelter hole.



## NATIVE TREE CULTURE IN CAIRNS

S. E. STEPHENS, F.R.H.S.

Trees are a common natural feature of the greater part of the earth's surface, and in all parts of the world some species are outstandingly attractive. Many of these have been gathered and spread from country to country by lovers of botanical beauty. Thus in North Queensland we have many specimens of such beautiful exotics as *Delonix regia*, *Cassia fistula*, *C. javanica*, *C. nodosa*, *C. grandis*, *Peltophorum ferrugineum*, *Spathodea campanulata*, and many others. These all add much to the beauty of our surroundings and are rightly admired. However, there are many indigenous trees of high merit also, and it is pleasing to be able to record the use by the Cairns civic authorities of many of our best natives in the city beautification. The following brief notes list the more outstanding of these so used.

***Wormia alata***—To be seen in Anzac Park, the Esplanade and Mulgrave Road. A papery red barked tree, with large, dark green, handsome foliage, and large yellow flowers often in clusters, that shed their petals to display deep red carpels on those that set fruits. This tree grows very well in damp situations and flowers over an extended period.

***Calophyllum inophyllum***—Alexandrian Laurel. Planted as an avenue in parts of Sheridan and McLeod Streets and in the Esplanade Park. Has very glossy dark green leaves and white scented flowers in spring, followed by round green fruit of the size of ping pong balls. This is an excellent shade tree, particularly in water-front locations.

***Sterculia acerifolia***—Flame Tree. Several in Abbott Street, the remnants of a complete avenue donated some years ago by the late Mr. Whittick. The specific name of the tree refers to the shape of the leaves and means maple like leaves. The leaves are in fact of the shape and size of the English maple but are of more fleshy texture. The tree is usually deciduous in early spring, and then becomes completely covered during the period between October and December with dense panicles of bright red flowers. The tree is particularly effective when set against the dark green foliage of other jungle trees.

***Castanospermum australe***—Black Bean. Many specimens have been planted in Abbott Street and younger trees are now established in several other localities. The tree has dark green pinnate leaves, and dense clusters of orange and red pea flowers on the branches during early spring.

***Adenanthera abrosperma***—Bead Tree. In the water-front park at the end of Shields Street. The tree has feathery bi-pinnate foliage of pale green colour, with numerous orange or bright yellow flower spikes in December. These are followed by long, curled, reddish pods that split open to disgorge numerous hard, bright red, pill like seeds.

***Barringtonia speciosa***—Several trees in Shields Street. These have very large, broad, pale green leaves and large white flowers with numerous long filaments. The flowers open at night and fall early next morning, when the ground becomes littered with the fallen blooms. A large squared, box like fruit of woody texture follows.

***Barringtonia calyptata***—A tall, rather narrow tree, represented by several street specimens on the Esplanade near the tennis courts, in Anzac Park and the water-front park. This species has long, dark green leaves, and the flowers are carried on long pendulous spikes during spring, and have a rather strong odour. A green plum-like fruit follows.

***Brassiaea actinophylla***—Umbrella Tree. Odd specimens in various street plots and in the water-front park. This is often an awkward looking tree but is attractive for its large palmate leaves arranged like an open umbrella, and for the very large, spiked inflorescence with red and pink flowers.

carried at the end of each branch. Its beauty is further enhanced by frequent visitations to the flowers by the Rainbow Lorikeet—*Trichoglossus moluccanus*.

**Grevillea robusta**—Silky Oak. This native of southern Queensland is thriving on the Lake Street side of the North Cairns Sports Reserve. It is one of the few native trees widely cultivated throughout the State over a long period. Its lacy foliage and orange flower heads in spring make it an attractive subject.

**Pongamia pinnata**—On part of the Sheridan Street frontage of the same sports reserve. The tree has bright green foliage that is reddish to yellowish coloured in the young stage. Lilac or mauve coloured flowers are borne in profusion in the spring but they are small and hence not very spectacular. The tree is a common one on well drained land in moist situations. It is almost deciduous in early spring.

**Cupaniopsis anacardioides**—The Lily Street frontage of the North Cairns Sports Reserve is planted with a full row of this tree. It has compound leaves of 6 to 10 leaflets, each of which is very broad and rounded at the apex and attenuated at the base. The tree bears seeds in capsules of three, and each seed, black or brown in colour is enveloped in a bright red arillus.

## THE BANDY BANDY SNAKE

**T**HE pretty little Snake known by the Vernacular name of Bandy Bandy or Black and White Ringed Snake, and by the Technical name of *Vermicella annulata*, is found in most Australian States, with the exception of Victoria and South Australia, it is in no areas very common, possibly owing to its nocturnal habits. Other terrestrial snakes marked similar include *Brachyurophis campbelli*, *Brachyurophis semifasciata*, *Rhynchoelaps bertholdi*, but in most cases the black rings do not circle the body like the Bandy Bandy, several Aquatic species are also similarly marked.

**COLOURATION:** The body of this snake is marked alternately with black and white rings which circle the body, the black rings being generally slightly wider than the white ones. The point of the snout is black then a white band over the nasals, top of the head is black from the supra labials only, with the infra labials and underneath the neck white. The first black ring on neck does not completely circle body but only goes as far as the ventrals on each side, all other black rings completely circle the body. A 22 inch specimen having 41 black rings around body.

**SCALATION:** The ventral scales number 226, sub-caudal scales 23 paired, anal scale usually divided, but one in the author's possession has a single anal scale, the scales around the body number 15, supra labials 6, infra labials 6, frontal scale is nearly twice as long as broad, and nearly twice as wide as the supra oculars. The snout is rounded, and the tail very short and pointed, being only 1½ inches in length on a 22 inch specimen. The species are nocturnal in habits, live mostly under rocks and rubbish, and feed on small frogs, insects, and small lizards, etc.

**DENTITION:** These snakes being in the poisonous group have fangs 2 mm. in length with an inter fang measurement of 7 mm. depending of course on the length of the particular specimen, all figures quoted are for a 22 inch specimen. The maximum length quoted by experts is 30 inches. Owing to the small fangs and small quantity of venom injected the snake can be classed as harmless being very docile when handled and in no way aggressive.

—VINCENT M. REILLY



## RAVENALA MADAGASCARIENSIS

"TRAVELLERS' PALM"  
(Scitamineae)

**T**HE type of growth, usually referred to as the Travellers Palm, is a never failing source of interest to the southern visitor here in Cairns, and much, mostly misleading matter has been written about it, in Australian articles in many papers and magazines, which has prompted this scribe to submit his views from practical experience of the subject.

The name is indicative of the fact that it is a native of Madagascar, and it is not a palm, but a tree, as although its trunk with its fibrous content, is similar to the trunk of a palm, there its similarity ends. No palm sends up what are rightly termed suckers, as even the Clump varieties of palms sprout from at or above soil level, but the Travellers' sends up suckers from the trunk's base below the surface, as does the banana, which is a relative.

It is often assumed that propagation can be made from these suckers but the writer has never seen this method succeed, as the suckers, when detached from the trunk base leave little or no rootage. The seed pods, alternating from the seed stem, between the leaves, contain very few seeds which, the size of a small bean, black in colour, with a blue woolly covering, are not all successful in germinating.

The leaves alternating and overlapping at their base are ten to fifteen feet long when tree is full grown, the whole trunk and tree growing to a height of thirty feet, whereas some palms will attain double that height. The leaves split with the wind as also do the leaves of the banana, and the leaf base makes an excellent reservoir for rain and overhead moisture conducted down the leaf stems to irrigate the trunk, and when cut will usually disclose frogs and insects plus putrid water.

The general belief that the tree will at all times provide water for the thirsty traveller, is more or less a fallacy, for if there is no underground or overhead moisture in its vicinity, its water content will be scarce. If a seedling is planted in a dry area, and another in a moist area, the former will wither, whilst the latter will thrive, also a seedling dislikes constant moist rootage, though an older tree will not object.

Another misconception is that however a seedling is planted, its fan shape foliage will twist and point due north and south, reacting to the poles' magnetic influence. The plain fact is that the tree will on some occasions twist in sympathy with its root formation, which can strike an obstruction or reach out for moisture.

To allow the suckers to grow in clump form around the main trunk is to detract from the spectacular specimen of a single giant fan, the whole weight of foliage and seed pods resulting in much greater weight than the single trunked palm. These overlapping leaves give the tree great strength and resistance to winds of hurricane force that it withstands in its native habitat, from the Indian Ocean.

Palms may be snapped and broken by these winds, but unless the Travellers Tree is old or decayed, it may bow but not break from the wind's force.

For the tropics and sub-tropics this type of growth makes an attractive specimen, and in its younger growth will decorate a partially enclosed verandah.

—S. DEAN

## CLUB ACTIVITIES

SINCE its Annual General Meeting the Club can summarise its activities in one word—PROGRESS. With the exception of the publications department—and this matter has been taken well in hand by our President, every branch of the Club can take a deep pride in the activities over the past three months.

At the Annual General Meeting the President urged all members to take over some part of the burden our Founder laid down, and with the willing team elected at that meeting, the results have exceeded expectations.

Amenities Officer Stan Dean has been busy. The Chillagoe trip was an outstanding success, and it was a pity that Stan had to withdraw at the last minute after so capably assisting with the arrangements. Despite two crashed cars, the inconvenience of sleeping on the floor (as one member reported), and the work involved in shaking Chillagoe dust from our vehicles for weeks after the event, our minerologists and geologists had a happy and educational time at Chillagoe. Botanists, and again geologists, had a field day when the Boulders trip was made, and a visit to a fine collection of orchids on the return trip was of value to the horticulturalists. Koombul Park (the last trip of the year) provided fun and games for young and old—thanks again to the efforts of the tireless Amenities Officer. These informal trips—valuable to the specialists, and entertaining to other Club members, are becoming a valuable social medium in the Club's work, and the definite "get-together" spirit is enhancing the Club's prospect of successful teamwork in the future.

The Club's main project, "Operation Chironex" has been well covered in the daily Press and represents the fulfilment of an unwritten pact that members would, on Dr. Flecker's death, continue his work on the sea-stinger until the Northern beaches were safe for bathers. This has meant a colossal amount of organisation, and to the President must go the credit of bringing the operation to the stage where we can confidently look forward to a successful fruition. The co-operation of Dr. A. V. Southcott, of Adelaide, has been invaluable, and the Club's heartiest thanks go out to this tireless researcher who is guiding our hands that we may achieve the ultimate success.

Mr. William Hosmer, F.Z.S., Club Member and now attached to the Department of Anthropology at Melbourne University, has identified a new species of frog sent from the Cairns area. Bill first became interested in Natural History through the N.Q.N.C., and we are proud to have fostered one of Australia's leading herpetologists.

Two Thompson Foundation Memorial Medals were awarded to members of the Club, the first being a posthumous award to the late Dr. Flecker, and the second to the Club's Secretary. Only two "Thompsons" have ever been awarded in N.Q., and both have been awarded to Club members.

The Club continues to exchange correspondence with all parts of the world, and recently the Smithsonian Institution sent for the Check List of N.Q. ferns, which is regarded as the authoritative publication in the U.S.A. The Secretary has had some trouble in deciphering Netherlands and German correspondence, but has been able to decipher the French and Belgian requests.

Financially the Club is sound, "breaking even" after heavy expense over the first quarter of the financial year, and membership continues to grow, but the Treasurer would like to see more members pay their dues on the due date.

In the matter of publicity the co-operation of the "Cairns Post" has been greatly appreciated, the Editor having placed a column at the disposal of the Club for a weekly article on Natural History. As this is a "paid effort," the Club benefits by space rates for approximately 90 inches per month.



Country members have shown an increased interest in the Club's activities, and Mr. Jim Bravery (Snr.), Ornithologist, of Atherton, has sent specimens of the Horsfield Bush Lark to Dr. McEvoy of the Melbourne Museum. A special permit had to be obtained before the specimens could be collected. They were sent to Cairns under refrigeration and the Club arranged refrigerated transport south.

Membership has shown an encouraging increase, and a Hawaiian member, Mr. H. Krauss, of Honolulu, recently made sure of obtaining the Club's publication by paying three years in advance!

Members elected to the date of the December meeting have been:—

Mr. Ambrose Trappes-Lomax

Mrs. Lucy Trappes-Lomax

Mr. K. Howarth

Mr. J. R. Collins

Mr. E. Hutchins

Mr. D. Fisher

Mrs. D. Fisher

Master Wally Fisher

Master Max Mathers

Approximately twelve members will be balloted for at the February General Meeting.

The Club is now the holder of valuable property. With the advice of the Honorary Solicitor (Mr. H. Dann) the Herbarium and Library were valued and insured for a sum of £500 against fire, and cyclone damage.

Mr. Eric Fielders' work at the Library has to be seen to be appreciated. The Dewey-Decimal system of indexing is in use, and he is making the herbarium and library practically a full time job. When he went away for a well earned three months' rest in November, we were sorry to see him go but all agreed that he had earned a respite from his voluntary labours.

For the future we plan to have a meeting room organised adjacent to the Herbarium so that all the Club's activities and organisational and executive work can be centralised. An Executive office is being set up in the Herbarium and it is hoped that the Secretary will be able to have a stated time each week to be in attendance for the convenience of members.

The formation of a Publications Committee will ensure that the "Journal" is published on time, and the President and his officers look forward to a time of increased progress in the Club's activities.

We're all shouldering the burden—and with the enthusiasm shown by members to the present time, it's a pleasant, albeit a heavy one.

—JOHN ORRELL

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## THE THOMPSON FOUNDATION MEMORIAL MEDAL

### TWICE AWARDED TO N.Q.N.C. MEMBERS

**H**IGHEST distinction of the Royal Geographical Society of Australasia (Queensland Branch)—the Thompson Foundation Memorial Medal—has, since November last, been awarded to two members of the Club.

Established in 1900 in honour of the Founder of the R.G.S. in Queensland (Dr. John Park Thompson, C.B.E., L.L.D., F. R. G. S.), the medal which may, at the Council's discretion, be of gold, silver, or bronze, is awarded to such persons as have gratuitously rendered eminent services to the Society.

At the November meeting of the Club, the Secretary (Mr. John Orrell), representing the Royal Geographical Society, presented the Medal to Mrs. Flecker, who received it on behalf of her late husband, our Founder, first President and Patron. The medal was inscribed "Awarded posthumously to Dr. Hugo Flecker for outstanding services to Geographical Science."

Mr. Orrell said that the Doctor had been for many years an ordinary member of the Society, and his findings and contributions to the store of knowledge of geographical science gained him a Fellowship in 1951. He continued a very active association with the Society until the time of his death, and the recommendation for the Medal was actually tabled before his passing. This was the first time the "Thompson" had been awarded posthumously.

In his letter advising Mr. Orrell of the award, and appointing him the Society's representative, the Director-Secretary of the R.G.S. (Mr. D. A. O'Brien, F.R.G.S.A., F.R.E.S., C.D.) asked that the award be considered as a gold medal. He stated that the price of gold had risen so alarmingly since the institution of the honour in 1900 that it was now economically impossible to have gold medals struck.

Mrs. Flecker received the medal on behalf of her husband, and Dr. Patrick Flecker, in briefly outlining the basis of his father's contributions towards geography, stated that he was happy to know that the late Doctor's work had been recognised—albeit too late for him to know that the award had been conferred.

On December 28th Mr. Orrell received the advice that he had also been awarded the Thompson Medal. Mr. Orrell first became a member of the Society in 1942. In 1948 he began research into the life of the explorer Edmund Besley Court Kennedy, who was killed by blacks on the Escape River in 1848. His thesis, published in the proceedings of the society in 1948, gained him a Fellowship in 1949 (F.R.G.S.A.) and in October, 1950, he was admitted as a fellow of the parent body in London (F.R.G.S. (Lond.)). He continued research and discovered the "missing three years" of Kennedy's life—the period between his arrival in Port Fairy and his association with Sir Thomas Mitchell. He was elected a Life Fellow of the Australasian Society in 1952. Mr. Orrell is also a member of the Australian Geographic Society and the National Geographic Society of America.

Since the last Annual Meeting he has been Secretary-Treasurer of the North Queensland Naturalists' Club.

The granting of the Thompson Medal to two members of the Club must be looked upon as an outstanding achievement and worthy of recognition, not only of the ability of the recipients, but of the high standard of research work carried out by Naturalists' Club members.

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PUBLISHED BY THE NORTH QUEENSLAND NATURALISTS' CLUB

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**President:**

A. A. READ, ESQ., 57 Grove Street, CAIRNS. Phone 3959

**Secretary-Treasurer:**

JOHN ORRELL, Box 991, CAIRNS. Phone, Trinity Beach 12

**Librarian and Curator:**

ERIC FIELDER, ESQ.

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ADDRESS ALL COMMUNICATIONS TO  
BOX 991 — CAIRNS

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Sunday Australian Print

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# The North Queensland Naturalist

The Journal and Magazine of the North Queensland Naturalists' Club  
Established 1932

27th Year

Cairns, 1st September, 1958

No. 120

## A NEW GENUS (ORCHIDACEAE) FOR AUSTRALIA

By S. F. St. CLOUD and A. W. DOCKRILL

*Tainia parviflora* Schltr, hitherto thought to be confined to New Guinea, has been found in the Babinda district by J. H. Wilkie and S. F. St. Cloud, flowering in September-October, 1956.

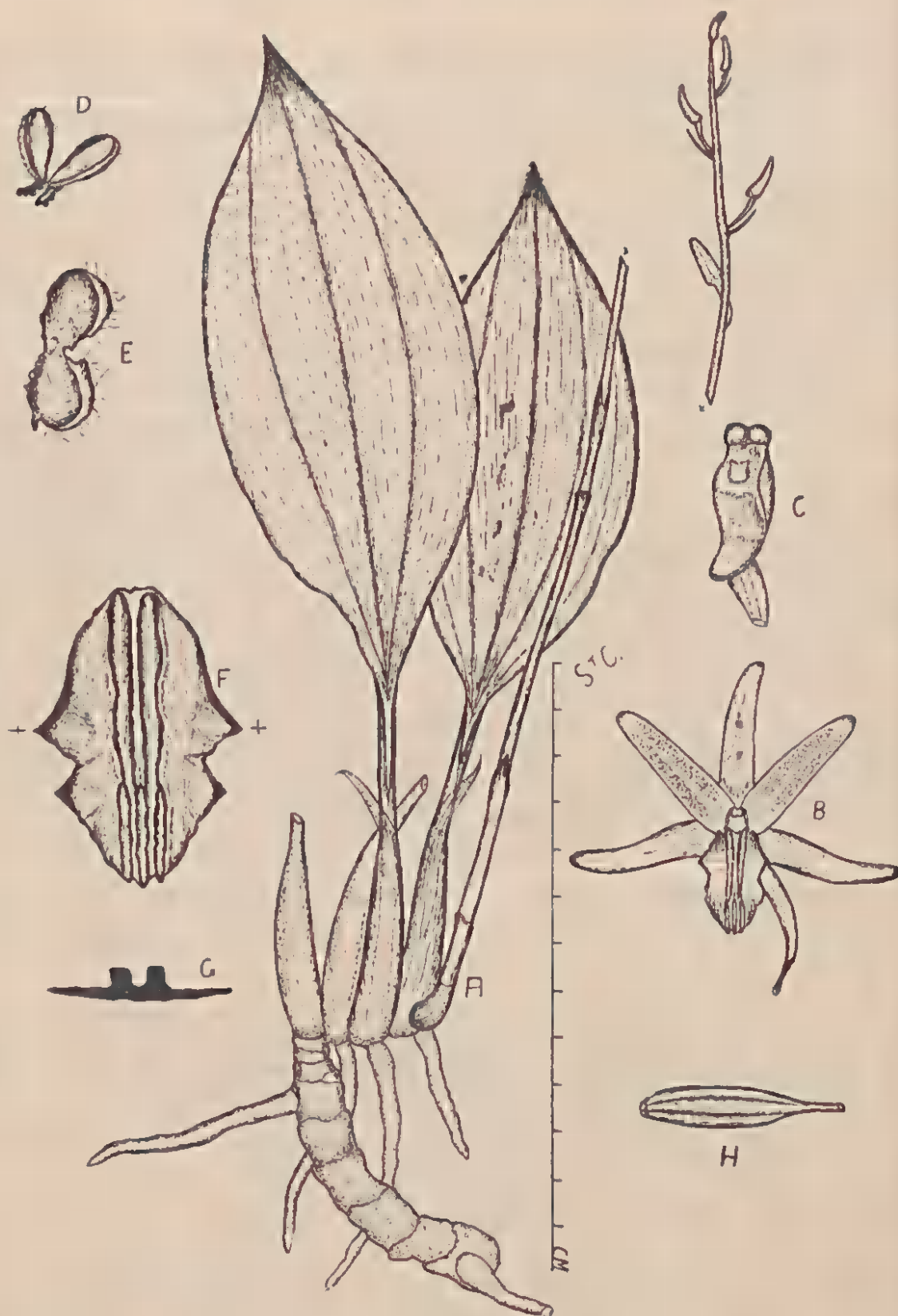
Since this represents not only a new genus, but also a new subtribe (Collabiinae) for Australia, and since neither a description of the species in English, nor an illustration has been published in this country, the following, prepared from the fresh Babinda material, is offered:—

Terrestrial herb consisting of a subvertical subterranean rhizome averaging about 7 x 2 cms., slightly flattened, internodes usually about 1 cm. long (but variable), some of them supporting stout and rigid white roots. At the apex of the rhizome and above the surface of the ground there is a pseudo-bulb which is linear-ovoid, about 4 cms. high by 7.5 mm. diameter at its base and tapering to about 4 mm. diameter at the apex, dull green, clothed with the scarious remains of a single enveloping bract. From the base of this pseudobulb grow a succession of similar pseudobulbs, in the horizontal plane, which are so closely appressed that there is no evidence of a rhizome connecting them, and each having a single root similar to those of the rhizome. Leaves solitary, petiolate, from the apex of the pseudobulb, petiole about 4 cms. long by about 4 mm. diameter, deeply channelled for its entire length; lamina ovate, acute, about 13 cms. long by 5.5 cms. broad, dark green, glossy above and dull below, with a longitudinal central channel above and keeled below, and with two subsidiary prominent nerves, each slightly channelled above and keeled below, dividing the leaf into four more or less equal parts. Inflorescence from the base of the foremost pseudobulb, erect, rigid, 28-32 cms. high, tapering from about 4 mm. diameter at the base to about 2 mm. diameter at the apex; one subacute sheathing bract about 3.5 cms. long at about 2.5 cms. from the base and another about 10 cms. from the base; bracts subtending pedicels linear, acute, about 4 mm. long.

Flowers about six, widely expanding, about 1.5 cms. diameter; greenish-white, with the perianth segments having a faint reddish purple centre line. Perianth segments subsimilar, narrow-oblong, but lateral sepals slightly dilated towards the base, not acute; petals projecting forward, over and embracing the column. Labellum whitish, with ridges of the disc stained deep purple and slightly raised areas of lateral lobes flecked with purple, not spurred, oblong, with four broad-deltoid lateral lobes, the two lobes nearest the base (at about the middle of the segment) a little larger than the two nearest the apex; apex with two notches; lamina with two prominent longitudinal parallel ridges from the base for about two-thirds the length of the segment (and are widest and thickest at the base and taper slightly towards the apex), thereafter three ridges to the apex, which are higher than the other two, attaining a height of 1-1.5 mm. and are beset with rounded teeth on top. Column white, about 3 mm. long, winged; foot at about 120 degrees to the column, about 1 mm. long; wings translucent white, broad deltoid. Anther readily detached, white with faint reddish-purple flecks, slightly flattened on top, two celled, each cell showing four indentations. Pollinia four in two pairs, each pollinium rather deeply

cleft, light golden, mealy, sticky; caudicle very short and stout. Stigma prominent, scutiform, the lower margin slightly raised. Rostellum resting on top of the stigma and consisting of a projecting platform which is sharply rounded at its apex.

The plants were found growing in almost total shade amongst leafy undergrowth on well drained but moist bank of Babinda Creek.



Key to plate:—

- A. plant; B. flower front; C. column; D., E. pollinia;  
 F. labellum from above; G. labellum section at X;  
 H. seed capsule.

Plant natural size to cm. scale; all other figures variously enlarged.



## NOTES ON THE GENUS VARANUS

(Continued)

By WILLIAM IRVINE

## NO. 2 VARANUS GOULDII (Continued)

On Saturday, 15th February, this monitor was not seen so a search was made by Mr. Frank Bower and myself. It was thought it was in a hole and that the hole had caved in, so every likely area was carefully dug up, without success.

The next day, Sunday, it was observed in the pit and ate some meat which was placed alongside it.

On Sunday morning, 2nd March, this monitor had been in the water dish, as it was wet when I inspected the monitors at 11.15 a.m. I think that this specimen spends quite a lot of time in the water, and I have seen it in the water more times than the entire collection of varius.

## NO. 3 VARANUS VARIUS (Continued)

On Saturday, 15th February, this monitor was found dead, and as it appeared to have died a few days previously, it was buried.

## NO. 4 VARANUS VARIUS (Continued)

Saturday, 15th February, whilst digging up the burrow to remove a dead specimen, the monitor charged at me, missed, and went for Mr. Frank Bower, who was with me. Mr. Bower sidestepped the rush and forced the monitor to the other end of the pit, where it paced up and down in a very aggressive mood.

This monitor was observed on Sunday, 2nd March. On seeing me he hissed violently and adopted a very aggressive attitude, took a few steps forward then stopped.

## NO. 5 VARANUS VARIUS (Continued)

Saturday, 15th February, the specimen was removed from a shelter hole and immediately attacked Mr. Bower and myself. It did this repeatedly until we could drive it to the other end of the pit, where the other aggressive monitor was situated.

No. 6

SPECIES	Date of Capture	Length ft. ins. mm.	LOCALITY	SITUATION
Varanus varius	26/1/58	4 3½ 1308	Moree	In a Tree

This brightly colored monitor was presented to me by Mr. Wal Lorking. I received it on Tuesday night, 4th February, 1958.

Due to the specimen rubbing its nose on the bag in which it was contained it had a mild dose of canker, which was treated with sulphamezathine in 33 per cent suspension.

On Saturday, 15th February, the specimen was cured, and placed in the monitor pit.

The specimen is extremely quiet and when I go into the pit it stays still and lets me stroke it and pick it up. This has helped considerably in settling the other monitors, as I can now go into the pit without the others running for their burrows. They still run a little, but instead of going down the holes, they stop and look around.

Sunday, 20th April. I observed the monitor lying with its head and forelegs resting on the side of the pit, with the hind legs and tail on the ground. I handled the specimen for a few minutes, then it went slowly up to the shelter hole and went in. The time was about 9.15 a.m. and it was raining very lightly. The specimen is just beginning to slough around the sides of the neck.

# CHECK-LIST OF BIRDS OF THE ATHERTON TABLELAND

Personal Observation over twenty years by James Bravery, R.A.O.U.  
Classification and annotation by John Orrell, F.R.G.S.A., R.A.O.U.

NOTE.—This Check-list is in approximate alphabetical order, and is tabulated as follows:—

**Column One:** The LOCAL name of the bird—that is, the name by which it is known on the Atherton Tableland.

**Column Two:** First Line—Scientific name of the bird. Following Lines—Names by which the bird is known in other parts of Australia.

**Column Three:** Numbers in this column indicate the page on which reference may be made in Cayley's "What Bird is That?"

1. BUTCHER-BIRD, Pied	Cracticus Nigrogularis. Black-Throated Crow-Shrike, Black-Throated Butcher Bird, Organ Bird, Piping Crow-Shrike, Varied Crow-Shrike, Flute Bird, Singing White Crow.	(51)
2. BUTCHER-BIRD, Grey	Cracticus Torquatus. Collared Butcher-Bird, Collared Crow Shrike, Derwent Jackass, Tasmanian Jackass, Whistling Jackass.	(50)
3. BOWER-BIRD, Black Satin	Ptilonorynchus violaceus. Satin Bower-Bird.	(14)
4. BOWER-BIRD, Tooth-Billed	Scenopoietes Dentirostris.	(20)
5. BROLGA	Megalornis rubicundus. Native Companion, Australian Crane.	(5)
6. BUSTARD	Eupodotis Australis. Plain Turkey.	(4)
7. BEE-BIRD	Merops ornatus. Bee-eater, Rainbow-bird, Spinetail, Sandpiper, Pintail, Kingfisher.	(77)
8. CASSOWARY	Casuarius Casuarius.	(4)
9. CAT-BIRD, Spotted	Ailuroedus Melanotus.	(19)
10. CHOWCHILLA, Northern	Orthonyx Spaldingi. Spalding's Spinetail, Northern Log-runner.	(44)
11. COCKATOO, White	Kakatoe Glaerita. Sulphur-Crested Cockatoo.	(139)
12. COCKATOO, Red-Tailed Black	Calyptrorhynchus Banksi. Banks' Black Cockatoo, Banksian Black Cockatoo.	(139)
13. COOT	Fulica Atra.	(232)
14. CORMORANT, Black	Phalacrocorax Carbo. Black Shag.	(238)
15. CORMORANT, Little Black	Phalacrocorax Ater Little Black Shag.	(239)
16. CORMORANT, Little Pied	Microcaeo Melanoleuchus. Little Black-and-White Shag.	(239)
17. CORMORANT, Pied	Phalacrocorax Varius. Black-and-White Shag.	(239)
18. CROW	Corvus Cecillae. Hazel-eyed Crow.	(56)
19. CRAKE, Marsh	Porzana pusilla. Little Crake.	(220)
20. CUCKOO, Horsfield Bronze	Chalcites Basalis. Narrow-Billed Bronze Cuckoo.	(70)



21. CUCKOO,	Lamprococcyx plagosus.	
Golden Bronze	Broad-billed Bronze Cuckoo.	(70)
22. CUCKOO,	Lamprococcyx Lucidus.	
Shining Bronze		(70)
23. CUCKOO, Rufous	Lamprococcyx russatus.	
Breasted Bronze		(69)
24. CUCKOO, Oriental	Cuculus optatus.	(75)
25. CUCKOO, Fantail	Cacomantis Flabelliformis.	
	Ash-coloured Cuckoo, Storm-bird.	(69)
26. CUCKOO,	Scythrops Novae Hollandae.	
Channel-billed	Fig-Hawk, Hornbill, Toucan, Giant	
	Cuckoo, Storm - Cuckoo, Floodbird,	
	Rainbird.	(60)

(To be continued)

## LIST OF SNAKES RECORDED FROM CAIRNS AND HINTERLAND

Wm. HOSMER\*

### Family TYPHLOPIDAE

- Typhlops proximus Waite
- Typhlops unguirostris Peters
- Typhlops broomi Boulenger
- Typhlops torresianus Boulenger
- Typhlops wiedii Peters
- Typhlops ligatus Peters

### Family PYTHONIDAE

- Morelia argus variegata Gray
- Aspidites melanocephalus
- melanocephalus (Krefft)
- Liasis amethystinus kinghorni
- Stull
- Liasis childreni Gray
- Liasis fuscus fuscus Peters

### Family COLUBRIDAE

- Sub-family Acrochordinae—
- Acrochordus granulatus
- granulatus (Schneider)
- Sub-family Colubrinae—
- Natrix mairii mairii (Gray)
- Stegonotus modestus (Schlegel)
- Stegonotus plumbeus (Macleay)
- Ahaetulla punctulata punctulata
- (Gray)
- Ahaetulla calligaster calligaster
- Gunther
- Sub-family Boiginae—
- Boiga fusca (Gray)
- Boiga irregularis irregularis
- (Merrem)
- Sub-family Homalopsinae—
- Enhydryis polylepis Fischer

### Family HYDROPHIIDAE

- Laticauda colubrina (Schneider)
- Hydrophis elegans (Gray)
- Hydrophis ornatus ocellatus Gray
- Acalyptophis peronii (Dumeril)
- Lapemis hardwickii Gray
- Astrotia stokesii (Gray)
- Pelamis platurus (Linnaeus)

### Family ELAPIDAE

- Aspidomorphus harriettae (Krefft)
- Aspidomorphus diadema (Schlegel)
- Demansia psammophis
- psammophis (Schlegel)
- Demansia olivacea (Gray)
- Demansia torquata (Gray)
- Demansia textilis (Dumeril and
- Bibron)
- Demansia nuchalis (Gunther)
- Pseudechis australis (Gray)
- Pseudechis porphyriacus (Shaw)
- Denisonia signata (Jan)
- Denisonia carpentariae (Macleay)
- Denisonia nigrostriata (Krefft)
- Denisonia pallidiceps (Gunther)
- Denisonia suta (Peters)
- Hoplocephalus bitorquatus (Jan)
- Acanthophis antarcticus
- antarcticus (Shaw)
- Brachyuropsis campbelli
- (Kingham)
- Rhinelaps warro (de Vis)
- Oxyuranus scutellatus (Peters)
- Vermicella annulata (Gray)

The present list of 47 species and sub-species are recorded from the files of the writer's private collection, and from notes compiled from local sources where the specimen has been positively determined.

\*University of Melbourne, Victoria.

## NOTES ON THE DEATH ADDER

By J. McLOUGHLIN

No doubt most people can relate some strange experiences concerning the humble snake. Casting my mind back about four years, I can recall a very interesting tale concerning a large death adder.

I was about to retire one Saturday night after visiting the local movie theatre, when my pleasant thoughts of a good night's sleep were interrupted by a loud knock on the front door. Wondering who could be calling at this late hour, I answered the door to find my nocturnal visitor was a young lad of about 10 years of age.

"G'night, mister. You the snake bloke?" he queried.

"Well-er-yes, I suppose you might call me that," I replied, somewhat taken aback by his unorthodox introduction.

"Good! Here's a snake," the youngster returned solemnly, holding out a bulging paper bag.

Now I might mention that the bag was of about four pounds capacity and in rather bad shape. Definitely not the sort of thing one would place any variety of wild life in and expect it to stop there. However, I invited the lad in and proceeded to open the bag. I was more than a little surprised when a large death adder slithered lazily out on to the floor. When I later measured it, I found it to be 2 feet 4½ inches in length.

I motioned toward the snake and the paper bag. "Do you often do this sort of thing?" I asked.

"Oh, no!" he replied. "Mum would have a fit if she knew!"

He then took his leave, my warning about handling death adders so nonchalantly having little effect. His story concerning the capture was that he had seen the snake on the road while on his way home from the pictures. He then found a short stick, and after eating his few remaining grapes, he pushed the sluggish reptile into the now empty paper bag.

I kept the snake for three weeks before I was able to entice it to eat in captivity and the occasion was, I think, interesting enough to warrant a description.

About six o'clock one evening, which is the time death adders normally move from hiding in search of food, I placed a large striped skink lizard in the glass case housing the snake. For a few minutes the lizard rushed hither and thither looking for some means of escape. Finding none it soon quietened down and began exploring its new surroundings. Now I must mention that all the while the adder lay in one corner of the varium, its body in a semi-circular position, with just the end of its nose and the tip of its tail visible above the sand.

Soon I was surprised to see the lizard walking very warily in the snake's direction. Looking at the latter, I noticed that it had slowly moved its tail about 1½ inches from its nose, and that the yellow coloured tip of the tail was convulsing slightly, giving the appearance of a worm in great distress.

The lizard had by now stopped about one inch from the now desperately convulsing "worm."

Throwing caution to the wind the lizard made a dash at its prey. With a flurry of sand the adder struck, its short but very efficient fangs entering just below the surprised lizard's head. In five minutes' time, all that remained of the once inquisitive lizard was a very full and contented look on the face of one death adder.



## THE QUEENSLAND GIRDLE SNAKE

[RHINELAPS WARRA (DE VIS)]

A rare snake found only within a radius of 20 miles of the Mareeba area of North Queensland at an elevation of from 2000 feet to 2500 feet, and, as far as the author is aware, only four specimens exist in collectors' hands, the author having two of these. Undoubtedly others have been seen or killed from time to time without having been identified.

This snake, known by the vernacular name of **Queensland Girdle Snake** and the technical name of **Rhinelaps warra (De Vis)**, is nocturnal in its habits, living mostly under soft soil where it burrows and spends most of its time. Its food consists of small insects, worms, etc.

**COLOURATION:** The colour is light reddish brown above, being darkest on the mid-dorsal line, varying to pinkish brown on sides, and yellowish brown on the Ventral surfaces. There is a dark black mark on the neck seven scales wide, the head is also light black from the snout to the mid Parietal with a gap of approximately 5mm. between the two marks.

**SCALATION:** The ventral scales number 146, sub caudels 20, all being paired, anal scale divided, scales around body number 15 at the largest diameter, all scales having darker edges giving the impression of a reticulate pattern, temporal scales, four. The eye being 1 mm. in diameter same distance from mouth.

**DEFINITION:** This snake, being poisonous but not deadly, has fangs one mm. in length with an inter-fang measurement of two m.m. With such small fangs and such a small quantity of venom this snake can be considered as being harmless.

Both specimens in the author's collection are 136 mm. in length with the tail being 14 mm. long in each case, a very short tail being approximately one-tenth of the length of the snake.

VINCENT M. REILLY

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## CLUB'S ACTIVITIES

Since our last Annual General Meeting, all members have taken a keener interest, and the various sub-committees are functioning well.

The financial position of the Club is at present sound, due mainly to the untiring efforts of our Secretary-Treasurer, Mr. John Orell, who has been writing a weekly article for publication in the Cairns Post, and, of course, the membership continues to grow.

Our President, Mr. A. A. Read, was finally induced to accept a small allowance as a "token" payment for unavoidable expenses incurred by virtue of his office.

The President, at a general meeting, presented our Secretary, Mr. John Orell, with the Thompson Foundation Memorial Medal, on behalf of the Geographical Society. Only two such medals have ever come to North Queensland, and each has been awarded to a Club member. The first was a posthumous award to the late Dr. Flecker.

Special thanks must be given to our Librarian, Mr. Eric Fielder, who has done a magnificent job in cataloging our many books and periodicals, according to the Dewey system.

Of our many guest speakers special reference must be made to a distinguished naturalist from overseas, Dr. J. von Frankenberg, of Hanover, who gave a most colourful and informative address to members. By judicious use of colour transparencies, he displayed some very fine exhibits

of shells, studies in the Orders of Arachnids, Hymenoptera, Coleoptera, and Lepidoptera, with some excellent closeups of various piscatorial studies. Mammalia exhibits were also included.

We are certain that the members benefited greatly from the Professor's instructive talk and excellent photography.

We are happy to report that we are now well established in our new meeting place, in the Jaycee Rooms on the Esplanade, and our sincere thanks go out to that body for their gesture in allowing these rooms to be used, and for their co-operation and support of the Club's activities.

Our Amenities officer, Mr. Stan. Dean, has done a sterling job in amongst other things, organising our monthly field days, and since we last went to press, visits have been made to Pebbly Beach, Brampton Beach, Mount Mulligan and Davies Creek. Our specialists in the natural sciences in particular Marine Biology, Botany and Geology, and members generally have derived great benefit from these visits.

"Operation Chirone" has continued to be a major club project, and some fine marine specimens have been collected and identified, and as investigations and research continue, many interesting facts have been brought to life.

It is hoped that all members will continue to show their enthusiasm and take part in all the Club activities. Remember, it is your Club, so help to expand it, by sharing some of the responsibilities associated with its organisation.

JOHN CASTLE

### NEW MEMBERS ELECTED

Membership has shown a decided increase and since our last publication the following have been admitted as members:—

Miss A. Swain	Mrs. Cassells	Mr. K. Wadsworth
Mr. F. J. Renouf	Master I. S. M. Orell	Miss M. L. Emmanuel
Mr. J. Bravery	Master R. G. Fisher	Mr. L. V. McFarlane
Mr. J. O. Kelly	Mr. Charles Lee	Mr. A. J. Cassells
Dr. I. L. Harrison	Mr. J. P. O'Shea	Master G. M. Fisher
Mr. B. Connolly	Mrs. O. C. Mole	Master D. Fisher
Dr. T. J. Hansen	Mr. L. Gane	

Several new nominees for membership are yet to be balloted for.

The Club meets in the Kuranda Barracks, our new meeting place, the second Tuesday evening of each month at eight o'clock. Visitors always welcome.

### PUBLICATIONS BY N.Q. NATURALISTS' CLUB

1. CHECK LIST OF NORTH QUEENSLAND ORCHIDS ...	PRICE 1
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# The North Queensland Naturalist

The Journal and Magazine of the North Queensland Naturalists' Club  
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No. 121

## A NOTE ON THE IDENTITY OF HELEIOPORUS SUDELLI LAMB

(Amphibia-Leptodactylidae)

By Wm. HOSMER\*

\*University of Melbourne, Victoria.

**ABSTRACT:** *Heleioporus sudelli* Lamb is synonymized with *Heleioporus pictus* (Peters). A small collection of frogs taken at St. George, S.W. Queensland are noted, and the possible trend of relationship in the *pictuscentralis* - *pelobatoides* complex is briefly discussed.

**HELEIOPORUS** *sudelli* Lamb was described in 1911, the type of which came from Warwick, S.E. Queensland. Since that time its status has remained indefinite, because of the vague nature of Lamb's text. Loveridge (1935, p.15) synonymized *sudelli*, together with *pictus*, under the name of *eyrei* (Gray), and as such they remained until Parker (1940) revived the names and showed that *pictus* and *eyrei* were not conspecific. Having only the original description to guide him, Parker had difficulty in associating *sudelli* with *pictus*, and suggested that it was possibly based on a specimen of *Limnodynastes* sp.

At the suggestion of Dr. Parker, I have examined the holotype of *H. sudelli*, and have found it to be clearly referable to the genus *Heleioporus*, and conspecific with *pictus* (Peters). Lamb compared his specimen with *H. albopunctatus* Gray of Western Australia, which lacks a pigmented metatarsal tubercle, so it is curious that he omitted to state the color of the tubercle in *sudelli*, which is dark brown (in spirit). He was in error in stating the first and second fingers were equal, for the first finger, when measured along its mesial side, is noticeably longer than the second. The nostril is nearer to the eye than to the tip of the snout.

A series of *pictus* collected at St. George, S.W. Queensland in the summer of 1956 are of special interest in that they are not wholly typical. The horny sheath of the metatarsal tubercle is rather smaller in extent, and only pigmented dark brown at the tip, not shiny black all over as in southern examples. Further, they have a somewhat shorter snout, shorter limbs and digits. In some individuals the nostril is equidistant from the eye and the tip of the snout, though more usually it is nearer to the eye. The degree of wartiness of the dorsum is variable, and a few specimens are almost entirely smooth. In all examples, the lower eyelid is finely peppered with black on a yellow ground color.

The differences enumerated above indicate strong affinities with *centralis* Parker, which opens up the possibility of intergradation between that species and *pictus*. In personal correspondence, Mr. Glauert, past Director of the Western Australian Museum writes, "... on this side of the continent *H. centralis* seems to merge into *H. pelobatoides* Werner." It may yet be demonstrated, when sufficient samples of *pictus-centralis* and *pelobatoides* can be assembled by a single worker, that we are dealing with

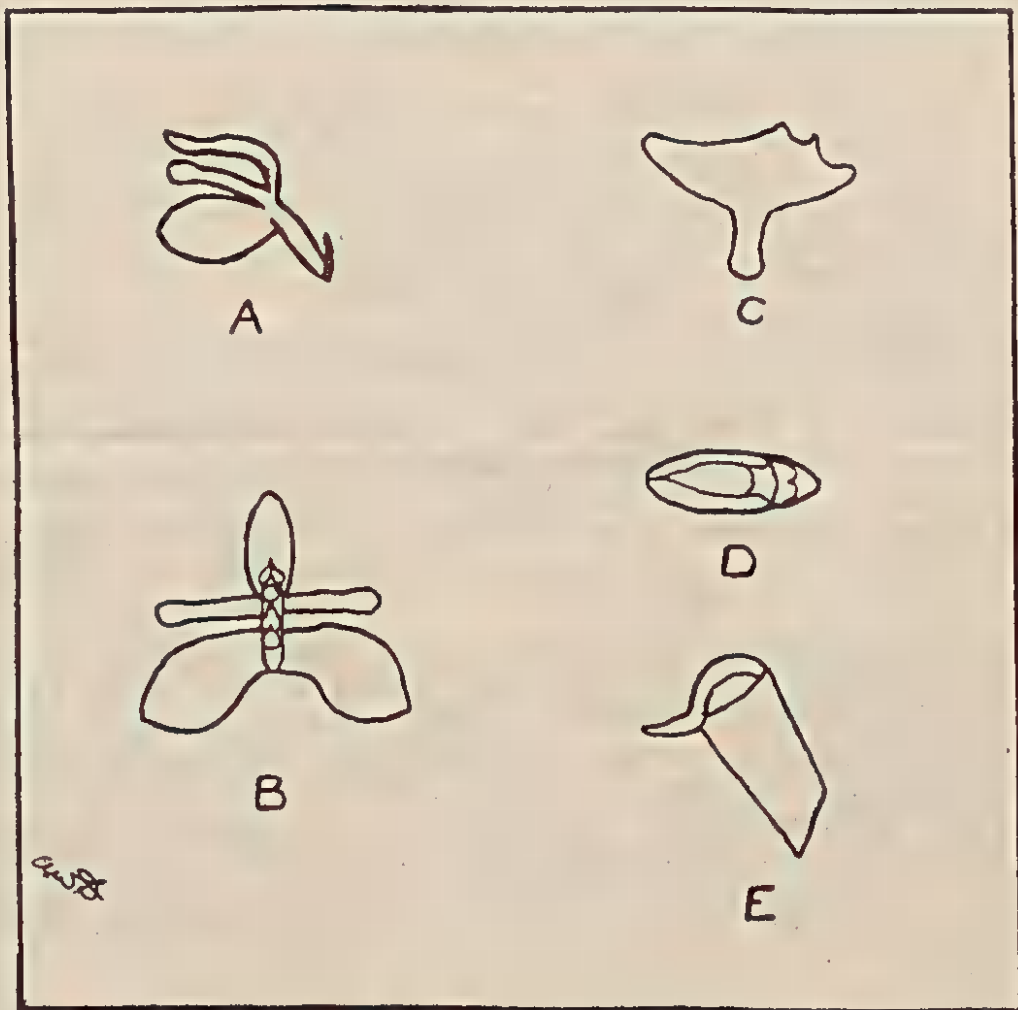
one species made up of adjacent populations, exhibiting a very gradual change of characters from east to west, forming a cline. Until this possibility can be tested, it may be preferable, in view of close relationship and apparent intergradation, to treat *pelobatoides* and *centralis* as subspecies of *pictus*.

#### LITERATURE CITED

- Lamb, 1911, Ann. Queensland Mus., No.10, p.26.  
 Loveridge, 1935, Bull. Mus. Comp. Zool., 78, No. 1, pp.1-60.  
 Parker, 1940, Novit. Zool., 42, No. 1, p.p.1-106.

## SOME NOTES ON SACCOLABIUM SUBLUTEUM, RUPP (Orchidaceae)

IN FEBRUARY 1955, the author received from J. H. Wilkie, plants of a small *Saccolabium* collected on Mt. Bartle Frere. When these plants flowered in the following April, they did not appear to conform completely to the description of any known Australian species of genus. Subsequent enquiries to S.F. St. Cloud, I received specimens from him in preservative with the assurance that they were *S.subluteum* Rupp, Nth. Qld. Nat.21: No. 105



Legend: A. Flower from side x 2

B. Flower from front, segments flattened x 2

C. Labellum from side x 4

D. Labellum from above x 4

E. Column from side x 8



(1953). It became immediately apparent that the original (holotype) specimen sent to Rev. Rupp by Mr. St Cloud must have been an immature and possibly "sick" plant, and not truly representative of the species, the plant of which assumes much larger proportions, and a much more usual (for the genus) appearance than its author was able to ascertain from examination of the single specimen.

The following description is prepared from the above mentioned 1955 material:— A small epiphyte with a stem up to about 3 cms. long. Roots comparatively few and rather thick. Leaves 3-6 up to 6 cms. long x 1.5 cms. broad, oblong-lanceolate, subacute, rather thick in texture. Racemes 1-2, very short and thick, 0.5-2.0 cms. long x 2 mm. diameter, elongating as the buds mature, and as few flowers are open at approximately the same time, and are not persistent after maturity, it is difficult to be sure of the number of flowers a raceme would have, but probably 3-10. Bracts subtending pedicels very small, broad, acute. Pedicels, plus ovary, about 3 mm. long. Flowers not widely expanding, perianth dull pale-yellow, labellum and column white. Dorsal sepal about 5 mm. long x 2.5 mm. broad, obovate tapering to a blunt point, somewhat concave.

Petals about 4m.m. long by 1m.m. broad, linear but slightly dilated at the apex.

Lateral sepals about 5 mm. long x 3 mm. broad, broad-oval, slightly falcate and slightly concave at the apex. Labellum about 4 mm. long, thick in texture, slipper shaped, trilobate but lobes minute; spur about 1.5 mm. long, cylindrical but slightly dilated at the apex, with a small valve inside the narrow-linear orifice. Column about 2 mm. long, cymbiform. Anther white, with an upcurved point. Pollinia 2, globular, translucent white. Capsule about 10 mm. long x 2.5 mm. broad, distinctly trilobate, the lobes very thin and prominent, almost wing-like.

—A. W. DOCKRILL,  
Georges Hall, N.S.W.

## WINNING ENTRY FOR 1958 H. FLECKER MEMORIAL NATURAL HISTORY MEDALLION

### OBSERVATIONS ON THE BROWN TREE SNAKE

(Written by MISS VALDA LAWSON, age 19 years)

**T**HE specimen of the Brown Tree-snake (*Boiga fusca*) under observation measured approximately five feet in length and exhibited the characteristic broad head, tapering neck and slender body of the species. In colour, it was copper, crossed with darker bands and had a cream underside. This species of snake varies, in colour, from copper to a dark brown and is crossed by corresponding, dark, irregular lines which are more distinct on some than on others. This variation in colour is probably due to different combinations of the pigment cells which include black or brown, yellow, orange or red. Many snakes have, in addition to these pigment cells, contained in the dermis (lower section of skin), guanophores, in which colour results, not from pigment, but from light diffraction by minute particles within the cells. However, I think the Brown Tree-snake possesses few, if any, of these cells, as I have viewed it in early-morning light, bright sunlight and electric light, and its colour seems to have little or no variation.

The body scales were long narrow and they were arranged in 19 rows. The anal was single; the ventral scales numbered about 238 and there seemed

to be approximately 90 pairs of subcaudals. The head scales were large and well developed and numbered about nine. Like all other snakes, it sheds its skin several times a year. At the last sloughing, this particular specimen loosened the skin at the nose and managed to peel it back until it was folded across its eyes. For some reason, the snake did not appear to be able to move it any further. The folds of skin totally obscured its vision and it kept moving round the box, rubbing its head on every slight projection. At first glance, I thought the snake was throwing a fit as it was bending in all directions and was knocking itself from the wall to wall of the box, onto the water tin and stones in the box. It was rubbing its head on the projections with such force, it seemed as if it must injure itself. This "fit" lasted nearly an hour before the snake managed to peel the skin over its eyes. From then on, it settled down and had completely lost its skin in a week.

Being "cold-blooded," the Brown Tree-snake, like other reptiles, is influenced markedly by the environmental temperature. Contrary to popular belief, reptiles cannot stand unlimited quantities of heat, and excessive temperatures will quickly kill them. The Brown Tree-snake exhibited this by sunning itself in the early morning and moving into the water tin or behind a bag hung over one end of the box, as soon as the sun became high in the heavens.

This species has vertical pupils since it is nocturnal in its habits. My specimen seemed to become most active about eleven o'clock at night, but was never particularly sluggish, even during the heat of the day. Several times during the day, I have seen it strike at the glass when people came close but it never attempted to strike when I had my hand in the box filling the water tin.

Locomotion in snakes is usually due to the backward pressure of lateral loops of the body against irregularities on the surface of the ground. Forward movement is accomplished by "hitching," part by part, the skin and body alternately, dragging the ventral scales on the ground, and producing a straight, smooth track. I placed my specimen on a smooth, clean sheet of glass and it was unable to move although it wriggled vigorously. When I placed it on a piece of wet concrete, it moved, but very slowly. However, as soon as I placed it on the ground, it moved very quickly.

Snakes are evolved from amphibians and, consequently, are almost all swimmers. The Brown Tree-snake seems to be a reasonably good swimmer. On two separate occasions I placed it on tubs of water, one cold and the other luke warm. It seemed to make better progress in the former, probably since, at the lower temperature, it needed less oxygen and the air in its air-sac would last longer.

This species is very fond of birds' eggs and birds, and will often squeeze through small mesh wire into a bird-cage, swallow some birds and be unable to get through the wire again. My specimen refused to eat a mouse or a lizard but made quick work of a tortoise's egg on one occasion and a small bantam's egg another time. Both of these were, of course, swallowed without breaking the shell.

The Brown Tree-snake is a back-fanged snake but only slightly venomous. The curved fangs are situated at the rear of the maxillary bone and my specimen seemed to have about two dozen small solid teeth in the front of the fangs and another two dozen on the lower jaw. The teeth, as well as the fangs, curve backward to prevent food slipping out of the mouth once swallowing has commenced.

I attempted to "milk" the Brown Tree-snake in the same way as the Taipan is "milked," by making it bite on the rubber-covered top of a medicine glass. This was not successful as the glass was too big to reach back to its fangs. I then used a small, thin test-tube covered with a rubber membrane. This reached the fangs and while it was biting on the rubber, I gently pressed on top of the poison glands and was successful in obtaining two small clear drops of liquid which were apparently venome. To see if this



venom had any visible effect on human blood, I pricked my finger and squeezed a drop of blood onto a glass slide and then dropped the venom onto it. There were no visible changes such as coagulation or precipitation.

Knowing that a Brown Tree-snake bite is not dangerous to humans, I allowed it to bite me three times on the arm, in order to ascertain whether the bite would have any ill effects. The bite was quite painless, just like the prick of a hypodermic needle. An hour after the bite, I had a slight rise in temperature (1.5 degrees) and a very slight headache. After another hour, my temperature was back to normal and the headache had vanished.

Hence, I concluded that the Brown Tree-snake is absolutely harmless and it is unnecessary to treat a bite from one if its identity is certain.

## CHECK-LIST OF BIRDS OF THE ATHERTON TABLELAND

(Continued)

By James Bravery, R.A.O.U., and John Orrell, F.R.G.S.A., R.A.O.U.

**Column One:** The local name of the bird.

**Column Two:** The Scientific name of the bird followed by names by which it is known in other parts of Australia.

**Column Three:** Numbers in this column indicate the page on which reference may be made in Cayley's "What Bird is That?"

27. CURLEW	Burhinus Magnirostris. Stone-plover, Stone-curlew, Thick-knee, Willaroo.	(161)
28. CURRAWONG, Pied	Streptina Graculina Pied Crow-shrike, Black Magpie, Mutton Bird.	(55)
29. DARTER	Anhinga Novae Hollandae. Snake-necked darter, Snake Bird, Shag Diver.	(233)
30. DOLLAR BIRD	Eurystomus Orientalis. Broad-billed Roller	(77)
31. DOVE, Peaceful	Geopelia Placidae. Ground-dove. Doo-doo	(85)
32. DOVE, Indian	Streptopelia suratensis. Spotted Dove.	(291)
33. DOVE, Diamond	Geopelia cuneata. Little dove, turtledove, Red-eyed dove	(86)
34. DOVE, Bar-Shouldered	Geopelia humeralia. Mangrove Dove	(86)
35. DRONGO, Spangled	Chibia brachteata. Red-eyed Blackbird (Cairns local name only).	(13)
36. DUCK, Black	Anas superciliosa. Grey duck, Australian wild duck, Brown duck Parera.	(246)
37. DUCK, White-eyed	Nyroca Australis. Hardhead, White-winged Duck, Barwing, Brownhead.	(241)
38. EGRET, Little	Egretta garzetta. Lesser Egret, Spotless Egret.	(236)

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|--|---|-------|
| 39. EGRET                                    | Egretta alba.<br>Great Egret, White Crane.  | (237) |
| 40. EGRET, Plumed                            | Egretta intermedia<br>White Crane.  | (236) |
| 41. EAGLE,<br>Wedge-tailed                   | Euroaetus audax<br>Eagle-hawk (Misnomer).   | (215) |
| 42. EAGLE,<br>White Breasted<br>Sea          | Haliaetus Leucogaster.<br>White-bellied sea eagle, White-bellied Fish hawk.   | (215) |
| 43. FALCON, Little                           | Falco longipennis.<br>White fronted falcon, Duck-hawk, Australian Hobby.  | (207) |
| 44. FALCON,<br>Peregrine                     | Falco Peregrinus.<br>Black-cheeked falcon.  | (207) |
| 45. FALCON, Black                            | Falco subniger.   | (208) |
| 46. FANTAIL, Grey                            | Rhipilura Flabillifera.<br>White-shafted fantail, White shafted fly-catcher, Snapper, Madfan, Cranky fan, Devil bird, Land wagtail. | (67)  |
| 47. FANTAIL,<br>Rufous                       | Rhipidura rufifrons.  | (23)  |
| 48. FIG-BIRD,<br>Common                      | Sphecotheres Veiloti.<br>Mulberry Bird, Banana Bird.  | (18)  |
| 49. FIG-BIRD,<br>Northern<br>Yellow-Breasted | Sphecotheres Flaviventris.<br>Yellow Fig Bird.  | (18)  |
| 50. FINCH, Banded                            | Steganopleurs bichenovii.<br>Doublebar, White-rumped doublebar, White-rumped Banded Finch, Old-faced Finch, Bichino's Finch.        | (196) |
| 51. FINCH,<br>Chestnut-Breasted              | Donacola castaneothorax.<br>Chestnut Finch, Bullfinch, Barley Bird, Barley Sparrow.   | (199) |
| 52. FINCH, Plum<br>Headed                    | Aidemosyne modesta.<br>Modest Finch, Cherry Finch, Plain-coloured Finch, Diadem Finch.  | (198) |
| 53. FINCH,<br>Red-Browed                     | Aegintha Temporalis.<br>Redhead, Waxbill, Sydney Waxbill, Redbill, Temporal Finch.  | (197) |
| 54. FLYCATCHER,<br>Brown                     | Microeca Fascinans.<br>Brown Flycatcher, Peter-Peter, Postboy, Postsitter, White tail, Stump Bird, Spinks, Jacky Winter.            | (64)  |
| 55. FRIAR BIRD,<br>Little                    | Philemon Citreogularis.<br>Little Leatherhead, Yellow-throated Friarbird  | (84)  |
| 56. FRIAR BIRD,<br>Noisy                     | Philemon corniculatus<br>Leatherhead, Monk, Four o'clock, Pimlico, Poor Soldier.  | (84)  |
| 57. FROGMOUTH,<br>Tawny                      | Podargus strigoides.<br>Tawny - shouldered Frogmouth, Tawny-shouldered Podargus, Mopoke.  | (64)  |
| 58. FLYCATCHER,<br>Lemon-Breasted            | Microeca Flavigaster.   | (215) |
| 59. FLYCATCHER,<br>Leaden                    | Myiagra Rubicula.   | (73)  |
| 60. FLYCATCHER,<br>Boat-Billed               | Machaerirhynchus Flaviventer.<br>Yellow-Breasted Wherrybill.  | (24)  |



## GOLDEN BOWER BIRD "PRIONODURA NEWTONIANA"

DISCOVERED in 1882 at the head of the Tully River by Kendall Broadbent, collector for the Queensland Museum. The first specimen being a plain coloured immature male or female, and was named "Prionodura Newtoniana," Prionodura meaning saw-tailed, and Newtoniana, after a famous English Ornithologist, Professor Newton.

THIS drab colored species at that time was hardly noticed and considered as just another bird until 1889 when Archibald Meston, M.L.A., while a member of a Government expedition to Bellenden Kerr Range, procured the lovely golden male bird at a height of 4800 feet, and for some time thought he had discovered a new species.

The lovely Golden Bower Bird is a resident of jungle-clad mountains and his range is approx. the ranges between the Bloomfield and Herbert.

The lovely golden bird builds a remarkable type of bower comprised of small dry sticks usually of a pyramid shape between two small trees and often connected by a vine the walls usually about five feet apart the edges are usually decorated with lichen and white flowers; at times the birds build a maypole type of bower well above ground.

For many years very little was seen or heard of "Prionodura" until a few years ago when well-known southern Ornithologist, Alex Chisholm, O.B.E., paid a visit to the Tableland and saw the golden bird and its unique bowers.

Mr. Chisholm was so enthralled by this beautiful species that he prevailed Mr. Norman Chaffer, famous wild life photographer, to pay a visit, and he was successful in taking the first black and white and also colored pictures of the bird in the reserves west of Atherton, and much publicity was given to the species in southern areas.

Having recently seen the Golden Bower Bird and bowers, twenty miles from Atherton, I can endorse all that has been published. As the bird preened his plumage and erected his crest he was truly a beautiful sight.

This unique bower bird never descends to low altitudes preferring the high jungle clad mountains.

—J. A. BRAVERY.

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## CLUB ACTIVITIES

IF, BY precept and example, Club members have raised their organisation to that standard whereby it is considered a privilege to be associated with "The Nats," then the past quarter can be counted a successful one. Membership continues to increase at a most satisfactory rate, and the President (not being superstitious) has welcomed thirteen new members during the past three months.

One can not qualify this upsurge of interest in Natural History by saying "Oh! Well, they like the field days, or enjoy the refreshments served after each monthly meeting." Field days can be enjoyed by anyone having a car, a bike, or even "Shank's pony," and a cup of tea can be obtained by more simple methods than attending a Club meeting.

The interest in Natural History is a genuine one, and the Club's specialists have been hard put to in satisfying the demands for information coming from these new members. It may be stated here that the self-same "specialists" have had to keep well on their toes to give accurate information, because some of the new members are becoming well versed in their chosen science.

Already one new member (a year old in membership) has become a well-versed ornithologist; another lady member, recently joined, is well on

the way to becoming a competent arachnidologist, and the weekly column in the "Cairns Post" has received notes from other new members showing a remarkable aptitude for the naturalists' prime requirements—patience, observation, and an ability to link the two in a logical manner.

All of which can be summarised in brief: The Club, in addition to gaining quantity on the Membership Roll, is also gaining quality of a high order, which should carry it even further along the high road to success.

Field days have been well attended and members visited Pine Creek and Williams' Forestry Road (Babinda) in October and November, foregoing a country trip in December to foregather at the President's home and celebrate the seasonal spirit. This "Field Day" attracted sixty-odd members and their friends, not very many more than answer the roll for the normal monthly expedition.

Monthly Meetings have been well attended and the talks given have been greatly enjoyed. Mr. Maslen, of Babinda, took members on the ascent of Bartle Frere (aided by lantern slides); a lecture on entomology by Mr. J. G. Brookes, F.R.E.S., showed a remarkable depth of learning; and Mr. R. C. Harder's illustrated discourse on the tobacco industry from seed-bed to selling floor was enjoyed by all.

Due to the persistence of the Club's journalist, the indulgence of the editor of the "Cairns Post," and the co-operation of some of our more literary members the weekly *Naturalist* continues to flourish, having extended to a column and a regular original half column. Members are asked to send their notes regularly to this useful part of the Club's activities as a regular supply of news means a regular column.

The President "beat the gun" this year with his personal organisation of the "Operation Chironex" campaign, and before the first northerlies began to blow had volunteer observation stations initiated from Rocky Point to Mission Beach. All members are confidently looking forward to a successful conclusion of the campaign during the coming "stinger season," particularly in view of the fact that in addition to his personal campaign, the President has arranged a programme of research work in conjunction with the British Medical Association and various laboratories in the South. Two problems have to be solved: What causes "Irukandji"? and "What is the substance with which Chironex Fleckeri stings?"

To summarise: Membership is increasing; interest is increasing—even our finances are increasing. Members are showing more than a passing interest in their chosen fields, and this issue of the "Naturalist" will give some indication of the standard of research reached by members. These results have been achieved by the willing co-operation of our active members. Who knows what goals would be achieved were every financial member also "actively active"?

—J.O.

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## NOTES ON A SMALL HERPETOLOGICAL COLLECTION FROM ST. GEORGE, S.W. QUEENSLAND

### Part One — Serpentes

BY Wm. HOSMER\*

Abstract: A small collection of snakes made in vicinity of St. George, S.W. Queensland is reported upon.

**D**URING the period from October, 1954, through January, 1956, I was resident at St. George, a small town of 2000 inhabitants on the Balonne River, 328 miles west from Brisbane and 75 miles north from the NSW State border. Collecting was carried out throughout the 15 months, as a result of which 62 species and sub-species of reptiles and amphibians were secured. Though this figure is probably not exhaustive, it gives a reasonable indication of the herpetofauna of a given locality. Such local lists are thought valuable to workers in taxonomy, where distribution is of major importance and because of this, the present list has been compiled.

Because of the small space available in the journal of my choice, it is not possible to treat of all the collection in a single paper, therefore this material is to be presented in three parts—snakes, lizards and frogs, respectively.

Unless otherwise stated, the specimens were collected by the present writer, whose field catalogue numbers are here used.

### SYSTEMATIC REPORT — SERPENTES

#### *Typhlops ligatus* Peters

*Typhlops ligatus* Peters, 1879, Mon. Akad. Berlin, p. 775, fig. 3: type locality, Mackay, Queensland.

A single example, No. 395, Myall Plains Station, St. George, Q., collector, H. Lawrence, Feb. 8, 1956. Nasal cleft to first labial; scales in 24 rows. Total length, 340 plus 8 mm.

#### *Typhlops kenti* Boulenger

*Typhlops kenti* Boulenger, 1914, Ann. Mag. Nat. Hist., (8), 11, p. 482: type locality, North Queensland.

Four specimens, Nos. 311, 350, 394, 416, St. George, Q. Nasal cleft to second labial; scales in 18 rows. Total length, largest example, 257 plus 4 mm.

#### *Typhlops australis* (Gray)

*Anilius australis* Gray, 1845, Cat. Liz. Brit. Mus., p. 135: type locality, Western Australia.

A single example, No. 544, St. George, Q. Nasal cleft to second labial; scales in 22 rows. Total length, 309 plus 5 mm. According to Waite (1918), this species occurs in all mainland States, excepting Queensland. This Queensland specimen therefore represents a new State record.

#### *Morelia argus variegata* Gray

*Morelia variegata* Gray, 1842, Zool. Miscell., p. 43: type locality, Port Essington, Northern Territory.

A single example, No. 532, St. George, Q. Midbody scales in 51 rows;

ventrals 291; caudals 81; anal single. Total length, a male, 2193 plus 320 mm. This python was found dead on the bank of the Balonne River.

***Aspidites melanocephalus ramsayi* Macleay**

*Aspidiotes ramsayi* Macleay, 1882, Proc. Linn. Soc. N.S.W., 6, p. 813: type locality, Bourke, N.S.W.

Two examples, Nos. 407-8, Katoota Station, via St. George, Q., and six miles south of Yulebah, Q., respectively. Scale-counts of No. 407 only are available. Midbody scales in 60 rows; ventrals 297; caudals 42; anal single. Total length, male, 1848 plus 133 m.m. This fine specimen was found sunning itself by the edge of a bore drain. The Yulebah specimen was found D.O.R. by a mail contractor, Mr. Dowling, and was too decomposed for accurate scale-counting, and the head only was saved. A black mark occurs on each supraocular, and the rostral and internasals are likewise black, merging into yellowish-brown; infralabials, chin and ventrals yellow; body brown, with numerous darker cross-bands.

***Ahaetulla punctulata punctulata* (Gray)**

*Leptophis punctulatus* Gray, 1827, in King's Voy. Aust., 2, p. 432: type locality, Careening Bay, Northern Territory.

The inclusion of this species rests upon a single specimen, seen by me, laying along a limb of a tree overhanging the waters of the Balonne River.

***Furina diadema* (Schlegel)**

*Calamaria diadema* Schlegel, 1837, Phys. Serp., 2, p. 32: type locality, Australia.

Two examples, Nos. 315 and 411, St. George, Q. Midbody scales in 15 rows; ventrals 172-4; caudals 41. Total length, largest specimen, 295 plus 57 mm.

***Demansia psammophis psammophis* (Schlegel)**

*Elaps psammophis* Schlegel, 1837, Phys. Serp., 2, p. 455: type locality, Australia.

Five examples, Nos. 309, 314, 316, 433, 453, St. George, Q. Midbody scales in 15 rows; ventrals 180-188; caudals 72-86; anal divided. Total length, largest specimen, 646 plus 212 mm.

***Demansia textilis* (Dumeril and Bibron)**

*Furina textilis* Dumeril and Bibron, 1854, Erpet. Gen., 7, p. 1242: type locality, Australia.

Eight examples, Nos. 328, 396, 432, 497, 531, 533, 536, 572, St. George, Q. Midbody scales in 17 rows; ventrals 200-210; caudals 62-69; anal divided. Total length, male, 1195 plus 275 mm. This species is common throughout the greater part of this State.

***Demansia nuchalis* (Gunther)**

*Pseudonaja nuchalis* Gunther, 1858, Cat. Sn. Brit. Mus., p. 227: type locality, Port Essington, Northern Territory.

Six examples, Nos. 401, 403, 406, 409, 514, 573, St. George, Q. Midbody scales in 17 rows; ventrals 211-217; caudals 48-57; anal divided. Total length, largest example, a male, 1205 plus 188 mm. The color is very variable, but two phases are particularly common. Phase A, creamy-brown or light tan above, the snout, and sometimes also the whole head, shiny black; a few scales on the neck also black. Phase B, dark chocolate brown above, the head and ventral side of throat and anterior scutes black; numerous narrow black, light edged, dorsal cross-bands from the nape to tail, or with fewer broad black cross-bands. This second color form is *carinata* of Longman, which is synonymous with *nuchalis*. *D. nuchalis* is quite distinct from *D. textilis*, and these two species share a common distribution throughout most of the State of Queensland, without intergradation.

***Pseudechis australis* (Gray)**

*Naja australis* Gray, 1842, Zool. Miscell., p. 55: type locality, Northeast Australia.

Two examples, Nos. 418 and 490, St. George, Q. Midbody scales in 17 rows; ventrals 192-199; caudals 51-61; anal divided. Total length, largest



individual, a male, 1665 plus 317 mm. This is the commonest of the large venomous snakes about St. George, where it is known locally as the red snake.

***Denisonia suta* (Peters)**

*Hoplocephalus sutas* Peters, 1863, Monatsb. Akad. Wiss. Berlin, p. 234: type locality, Adelaide, South Australia.

Five examples, Nos. 390, 429, 431, 455, 488, St. George, Q. Midbody scales in 19 rows (17 in one aberrant individual); ventrals 155-159; caudals 28-39; anal single. Total length, largest example, a female, 327 plus 43 mm.

***Denisonia devisi* Waite and Longman**

*Denisonia maculata* var. *devisi* Waite and Longman, 1920, Rec. Sth. Aust. Mus., 1, p. 177, fig.: type locality, Queensland.

Six examples, Nos. 389, 391, 393, 404, 420, 430, St. George, Q. Midbody scales in 17 rows; ventrals 125-132; caudals 27-33; anal single. Total length, largest example, a female, 352 plus 50 mm. Mackay (1956) has done much to clarify the status of *devisi* and *maculata*.

***Denisonia gouldii* (Gray)**

*Elaps gouldii* Gray, 1841, in Grey's Journ. Exped. Wst. Aust., 2, p. 444, pl. 5, fig. 1: type locality; Western Australia.

Nine examples, Nos. 319, 347, 427, 434, 439, 440, 454, 456, 468, St. George, Q. Midbody scales in 15 rows; ventrals 149-154; caudals 26-32; anal single. Total length, largest example, a female, 342 plus 52 mm. Several specimens show a faint dark vertebral stripe, as in *D. nigrostriata*. Loveridge (1935, p. 228) was dubious in accepting his Dalby example, as the species had not been recorded from Queensland previously. It is, however, a very common species in the south of the State, west of the dividing range.

***Hoplocephalus bitorquatus* (Jan)**

*Alecto bitorquata* Jan, 1859, Rev. et Mag. Zool., p. 128: type locality, Australia.

Two examples, Nos. 405 and 534, Nindy Gully, 29 miles south from St. George, Q., and Mungindi, 76 miles south from St. George, Q. Midbody scales in 21 rows; ventrals 202; caudals 50-55; anal single. Total length, largest example, a male, 296 plus 53 mm. Several other specimens were taken at St. George, but are not represented in the collection. This species is not uncommon when its habits are known. I have found it to frequent the river courses and creeks, where it hides during the day beneath the loose bark of trees, particularly ironbark or brigalow.

***Vermicella annulata* (Gray)**

*Calamaria annulata* Gray, 1841, in Grey's Journ. Exped. Wst. Aust., 2, p. 443: type locality, Australia.

Two examples, Nos. 385 and 571, St. George, Q., the latter specimen collected by Mrs. E. Horrigan. Midbody scales in 15 rows; ventrals 224; caudals 20; anal divided. Total length, 375 plus 23 mm. Mrs. Horrigan found the specimen at night on the roadside.

\* University of Melbourne, Victoria.

## THE GENUS *PTEROSTYLIS* R. BR. (ORCHIDACEAE) IN NORTH QUEENSLAND

IT IS GENERALLY recognised that the genus *Pterostylis* originated in Australia and those species occurring in New Zealand, New Caledonia and New Guinea are either found in Australia also, or are "local developments from migrants" from Australia. In the southern and western States of Australia, many species occur on the lowlands, although some species found in Tasmania, Victoria, N.S.W. and South Australia are strictly alpine.

All of the species so far found in tropical Queensland (and New

Guinea) have been growing on the highlands, which would appear to bear out the observations in the first paragraph. The two species, *Pt. depauperata* F. M. Bail and *Pt. carinata* Dock, which are peculiar to North Queensland, are very closely related and apparently confined to the Atherton Tableland.

The following is a list of species believed to occur in North Queensland:

1. *Pt. acuminata* R. Br.
2. *Pt. baptistii* Fitzg.
3. *Pt. Carinata* Dock.
4. *Pt. custa* R. Br.
5. *Pt. depauperata* F. M. Bail.
6. *Pt. grandiflora* R. Br.
7. *Pt. ophioglossa* R. Br. (and var. *collina* Rupp).
8. *Pt. rufa* R. Br.
9. *Pt. parviflora* R. Br.

1. *Pt. acuminata* R. Br., Prodr. (1810) 326.

For many years this species has been known to occur in New Caledonia (as well as the southern States of Australia) and about five years ago specimens were forwarded to the Nat. Herb. of N.S.W. from New Guinea. However, it was not until 1957, when W. W. Abell sent specimens from Mt. Spec, that we had a definite record for tropical Queensland.

2. *Pt. baptistii* Fitzg., Aust. Orch. 1: 1 (1875).

This handsome species is relatively common in coastal swamplands in N.S.W. and Southern Queensland, but the author has no definite record from North Queensland, yet a number of unconfirmed reports have been received of its occurrence on the Atherton Tableland. Confirmation of these reports would be of considerable value.

3. *Pt. carinata* Dock, Nth. Qld. Nat. 23: No. 110, 4 (Jan., 1955).

Already mentioned above.

4. *Pt. custa* R. Br., Prodr (1810): 326.

This is a common species in all southern States. Specimens collected near Ravenshoe a number of years ago by the late Dr. Flecker were identified as this species by the late Rev. Rupp. In May, 1955, S. F. St. Cloud collected specimens in the same locality.

5. *Pt. depauperata* F. M. Bail, Bot. Bull. 4 (quoted Bail., Qld. Flor. 5: 1577 (1902)).

Already mentioned above.

6. *Pt. grandiflora* R. Br., Prodr. (1810): 327.

The only definite North Queensland record of this beautiful species, common in the southern States, is Mt. Spec, May, 1957, collector Abell.

7. *Pt. ophioglossa* R. Br., Prodr. (1810): 326.

This species is widely distributed from Central N.S.W. to Southern Queensland, usually in extensive, widely separated colonies, and is also found in New Caledonia. As far as is known, the type variety does not occur within the tropics in Queensland, but var. *collina* Rupp, Proc. Linn. Soc., N.S.W., 54: 552 (1929) known only from the Hunter Valley in N.S.W., was recorded many year ago in North Queensland. Specimens received from Abell from Mt. Spec in 1957 were certainly the rich color of var. *collina* but lacked the short dorsal sepal of that variety.

9. *Pt. rufa* R. Br., Prodr. (1810): 327.

Bailey, Qld. Flor. 5: 1577 (1902) states that this species occurs as far north as Rockhampton. No specimens from within the tropics are known to the author. Information of definite records of this or allied species would, again, be of considerable value. They should be looked for in the West as well as on the coast and highlands.

8. *Pt. parviflora* R. Br., Prodr. (1810) 327.

This is a very common species in S.A., Tasmania, Victoria, N.S.W. and is found in Southern Queensland. The only definite record known for the tropics is that collected at Mt. Spec by Abell in 1957.

From the above few observations it can be seen that three southern species were discovered within this region as late as 1957. Undoubtedly



others await discovery. *Pt. recurva* Benth., Fl. Aust. 6: 360 (1873), a Western Australian species, extends to the Northern Territory and it would not be altogether surprising to hear of its occurrence in the north-west of Queensland.

—A. W. DOCKRILL

BY MAN, FIRE, EROSION, THE HILLS EACH SEASON WITH FORESTS,  
ARE BARREN, A SENSELESS REASON.

## NATURE'S SENTINELS

**I**F THE hills could only speak, what tales they could unfold?  
Of a country's first conception, its birth, its growth, so told,  
Its pioneers, its settlers, some weak, some stouter breed,  
But all of them with one intent, a livelihood their need.  
The mountains in their majesty, o'ershadow all sublime  
And hills formed into ranges, stand ageless as to time,  
Providing growth for tree and shrub, as shelter for the wild  
Untrammelled life in nature, remaining undefiled,  
With cooling streams encompassed, for bathing and for thirst,  
Attracting flighted songsters at the sunray's morning burst.  
A panoramic life to view, is the hills' prerogative,  
Keeping watch on man's encroachment, to live or not to live:  
The battle of man 'gainst nature, o'er many countless years,  
Of courage, success, achievement, with heartache wracked with tears.  
Nature takes, it also gives, to those with value sense.  
Man must work with nature, he should not be so dense  
As to disregard the benefits, health, without such ills  
As failure, if he co-operates, with wisdom seen by the hills.

—S. DEAN.

## MAKING OF A STONE AXE (NAAMBA)

**T**HE rain forest people such as the Tjapukai usually selected a water-worn slate stone for the axe blade, egg-shaped in plan and about one inch thick in the middle and tapering towards the edges. The stone was picked up in a creek bed and the cutting edge was pounded with a hammer stone to flake off unwanted thickness, a groove was pecked around the stone a couple of inches in from the back edge to house the haft. The cutting edge was then ground on a sandstone or granite outcrop or a suitable slab until the edge was sharp.

I have also seen a few axe heads in sandstone. If there was no water-worn stone available a flake of basalt or other hard stone was ground to shape—should no flakes of stone be handy a fire was lit on a rock outcrop and when the rock was hot water was thrown in the fire to flake off a piece of rock.

In some parts the back edge of the axe head was cut away with two right-angled cuts top and bottom and the haft was fitted in the back edge.

The name given to a steel axe was Na-kail; this is the native name for ironstone.

The rain forest people used lawyer cane for the haft and people living in the forest country any handy flexible sapling. Sometimes a straight sapling with two straight close-growing shoots was used for the haft. The axe head was placed in the fork and the shoots tied together near the axe

head and in time the shoots grew together and were cut off below the fork and about fifteen inches along the halft.

Sometimes the halft consisted of a half section of cane looped round the axe head and tied below the head and end of the halft.

The Hjapukai people would select a piece of green-skinned lawyer cane about one inch in diameter and split it down the centre; the parts to go round the axe head were cut to the shape of the groove and one piece was lapped round the head, allowing the end to come down to just below the axehead. The other half was lapped round the opposite side and the ends of the halves turned inward to each other at the end of the halft. A length of thin brown skinned lawyer cane was split and then bound round the halft from below the head to the end. The top laps and turned-in ends were further secured with a mixture of grass tree gum and native beeswax, colored with ground charcoal.

For several years I had been looking for a native to halft a few axe heads for southern museums and myself and finally I found a Tjapukai man named Gwoyken (scrub country) who had learned the craft from his grandfather. This was very unusual as few of the de-tribalised natives ever bother to learn the crafts of the old people.

It took me some time to contact Gwoyken as he was always in a different area to me. Finally, in a visit to the Moona Moona Mission, I was talking to the superintendent when I spotted Gwoyken coming my way. I got into the van and asked the superintendent to call Gwoyken over and when he arrived I asked him into the van—started up the engine and drove off. I told him that he had a job to do for me. He was not very happy about the deal but became happy when I showed him a new knife and a packet of tobacco, tea and sugar, and a promise of each when the job was completed.

We set off for a place along Flaggy Creek where a special green-skinned lawyer was growing. It was quite a trip—we had to plough through long grass eight to nine feet high in the van and as the stumps were becoming too numerous we got out and walked to the scrub.

On the way through the scrub Gwoyken started to forget his mission schooling and used native words to speak to me as we walked along looking for the right lawyer cane. He pointed out numerous edible fruits and plants to me, also some of medicinal value. I was thoroughly enjoying the trip and found myself using a mixture of English-pidgin and native words to speak to Gwoyken.

We got our cane and then had to travel to a different area for the thin yellow-skinned cane for the binding.

As we walked along Gwoyken started to sniff and told me there was a carpet snake about; a bit further on he smelt a brown snake (the natives sense of smell is remarkable). All I could smell was my old pipe.

We crossed the creek on a fallen log and had walked only a few yards when Gwoyken stood on a snake with his bare feet. He rose up vertically in a mighty hurry calling out jumar, the general name for all snakes and after I had my laugh I killed the snake.

Gwoyken was a bit nervous after this episode so we hurried up and collected the yellow cane, then back to the van, discussing native plants on the way.

On arrival at the camp we sat down in the shade of a bloodwood and Gwoyken started to split the cane, using teeth and knife. He carefully split the green cane down the centre and shaped the ends to fit round the groove in the axe head. The thin yellow cane was then split down the centre. The halves of green cane were then lapped round opposite sides of the axe head, the bottom ends turned inwards to each other and then the halft was bound with the split yellow cane from the bottom of the axe head to the turned-in ends.

As I watched him work I became conscious of a quietly growing semi-circle of natives squatting behind us. No word was spoken by the visitors until I had turned and greeted them and passed round the tobacco.



pouch. I told them of Gwoyken walking on the jumah. This caused a great laugh and put everyone in a good mood.

Gwoyken worked steadily on, enjoying the mild sensation he was creating as it was the first time most of the young people had seen an axe halfted.

I heard a sound of chopping in the distance and shortly after two old ladies, Jool-bg and Wanga-day, approached with their hands behind their backs. They stood in front of us until I greeted them and asked them to sit down. They then produced two gunda (digging sticks) they had hurriedly made and presented them to me.

It had always been my custom to call the old people and give them a gift of tobacco, tea and sugar, etc., as payment for information on tribal lore and in my hurry to get Gwoyken on the job I had missed my usual visit. As I had not called on them they thought they were going to miss out on the rations, hence the gift of gundas.

The axe halfting was now nearing a finish and as I talked to the old girls a young lad asked me if it took me long to learn the Tjapukai language. He said he had tried to learn Tjapukai but could not manage the words. This greatly amused the gallery at our rear and the lad had to put up with a lot of chaffing.

I do not speak Tjapukai fluently. I have learnt only sufficient to understand the old people when they spoke of tribal lore as there are no English words for some of their words. A white man is called a meecoola in Tjapukai and this term is also used for a native who does not know the tribal tongue.

This finished a very pleasant day for me. I had two neatly halfted axes and Gwoyken was happy with his pay. The people in general had enjoyed the wongi.

Boongua the sun was going to camp behind the Boonda so I left for home.

—DOUG SEATON

## HOPLOCEPHALUS BITORQUATUS

ONE of our very few tree-climbing poisonous snakes which has no common vernacular name but is known by the technical name of *Hoplocephalus bitorquatus* is one of our snakes of which very little is known. This being one of the broad-headed snakes, other members of the same genus include *Hoplocephalus bungaroides* and *Hoplocephalus stephensi*, all of these have keeled ventral scales which, like the Green Tree Snake (*Ahaetulla punctulus*) indicate tree climbers. This snake, having fangs and poison glands, is poisonous but not considered deadly owing to its small length which is not in excess of two feet, but a bite should be treated with caution and first aid treatment should be administered.

**COLOURATION:** The colour of this snake is slatey black above with white and black patches each three to four scales wide on the nape of the neck, the top of the head having black markings on a light brownish white background. Each labial scale is also black and white. The ventral and sub-caudal scales are also slatey black on the mid-ventral line.

**SCALATION:** The ventral scales are keeled each side and number from 197 to 200, the sub-caudals number from 44 to 60, all being single, and the anal scale is single also. Body scales in the thickest part of the body number 21, supra labials number six and infra labials number five. The head is distinct from the neck.

**DENTITION:** This species has fangs approximately 2 mm. in length

with an inter-fang measurement of approximately 6 mm. This depends, of course, on the length of the type specimen.

**LOCALITY:** Two specimens in the author's possession came from Irvinebank and Ravenshoe on the Atherton Tableland, North Queensland. Other specimens have been recorded from time to time along the coastal areas of Queensland and New South Wales.

—VINCENT M. REILLY

## CLUB ACTIVITIES

**T**HE activities of the Club for this quarter have been very extensive, with the various members being active in their own sphere.

Librarian, Mr. E. S. Fielder, through dint of perseverance, is getting our exchange list back on to a very good footing.

Mr. Fielder has been going through the old lists of exchange and contacting those clubs and institutions which, for some reason or other, have stopped posting their publications and journals, and the results, so far, are proving very gratifying.

The specialised articles which make up the reading matter of these publications is of much value to the members in their different spheres of interest and this is where I want our country members to realise that this same material is at their disposal in just the same way as it is to the town members.

It does not matter what subject of natural history you are interested in, you have only to drop a line to Mr. Fielder and I am sure you will find him most helpful and pleased to forward whatever articles we have on that subject to you. I just want to point out, though, don't keep those articles too long before returning them, as other members are constantly asking for information and what they are wanting might just as easily be in the literature you have, so just make your notes and reference and post them back. There also could be some of our town members who could and would be pleased to help out with advice from some of their store of knowledge on that subject.

Whilst on the subject of articles, I want every member to realise that this journal is constantly crying out for original articles on any subject of natural history for publication. At the last Council meeting of the Club it was decided that the author of each article published will receive six copies of that journal, but should the authors require more, a letter to Mr. Fielder will be sufficient to have that wish attended to.

Since our last publication, membership of the club has continued to increase steadily, and the particular interests of the new members embrace many fields of activity.

Many interesting talks and slide evenings have been held in conjunction with the usual monthly meetings, at which good attendances have been maintained.

The Club meets at the Kuranda Barracks on the second Tuesday of each month. Postal address: Box 199, Cairns.

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## FIELD NOTES ON THE BOAT-BILLED FLYCATCHER

BY JOHN WARHAM

ONE of the smallest of the rain-forest birds, the Boat-billed Flycatcher (*Machaerirhynchus flaviventer*) is restricted to North Queensland where it is usually found as a member of the feeding flocks of mixed bird species common in this region. I have met it at various places from Cape York as far south as Sandy Pocket some 12 miles south of Innisfail but nowhere was the species common; usually only a single pair was noted at each sighting. In most instances the soft warblings of the males drew attention to the birds which appear to feed fairly high up—from 20 to 60 feet above ground level in the instances noted by the writer.

Boat-bills may be very easily called up with the aid of squeaking sounds. In the tiny patch of rain-forest behind the beach at Cape York I enticed a pair within two feet and the calls and pirouettings of this couple subsequently brought the rest of their company around me—several Spectacled Flycatchers, a pair of Rufous Shrike-Thrushes, a single Grey Whistler, Leaden Flycatchers and Rufous Fantails and a female Magnificent Rifle-bird. The latter was very excited by my calls and repeatedly came down to a few feet from where I stood.

On January 22, 1959, a nest of the Boat-billed Flycatcher was found in the terminal leaves of a branchlet of a bushy evergreen tree by the Barron River at Wongabel near Atherton. On this date the birds were making frequent trips to and from the nest which was about 20 feet from the ground. It seemed that one side of the structure—a deep cup underslung from the branch—had yet to be made and I concluded that building was still in progress. However, on the following day a closer inspection revealed that the adults were feeding two chicks. These were clinging to the walls of the nest on the only side that was complete and looked most insecure. They were already partly feathered and a pylon-type hide was begun the same day in order that the nesting could be observed at close range.

The Boat-bills proved quite fearless. They continued to feed the nestlings while I was still noisily driving in nails and only five feet from the nest, completely unconcealed. Both sexes fed, the female perhaps slightly more often than the male. Both tended to warble a quiet whispered song as they approached with their tails somewhat uplifted as they hopped along the branchlet supporting the nest.

Small insects were the main foods, Diptera apparently predominating and a long series of negatives taken with electronic flash will eventually enable a more accurate determination of the insect species being carried. Damsel flies were given to the young entire and after some trouble were swallowed complete with wings. Occasionally insects were captured close to the nest and were immediately presented to the young.

Nest sanitation was thorough. Faeces were carried off in the parents' beaks and discarded well away from the nest. Any that fell below were assiduously sought for and disposed of. The adults scratched their heads indirectly—over the wing—during preening.

On January 25 one chick only was present. It was clinging to the branch above the nest but was obviously too undeveloped for fledging. Later I heard a peculiar trilling and after some difficulty found the bird.

responsible: the missing chick had fallen into thick bladey grass. On being replaced in the nest this young bird continued to trill at regular intervals for a long time and it also shivered the whole of its body as if shocked. It received three feeds in rapid succession and seemed quite recovered when last seen. Its fellow nestling, satiated apparently by its recent monopoly of the food, made no attempt to beg, but it did voice a soft chirrup, a note common to both chicks and quite distinct from the trilling call.

Both chicks were still clinging to the branch on January 26 but on the next day the nest was empty. The female Boat-bill was feeding one of the young whose trillings from the grass about five yards from the nest tree, were directing its parent's actions.

## COLLECTING TRIP TO NORTHERN AUSTRALIA

BY PHILLIP H. COLMAN (N.S.W.)

I HAVE just returned from a wonderful trip to Queensland, which lasted not quite four months. In that time I saw quite a bit of the coast, especially north from Gladstone right through to Thursday Island. The purpose of the trip was mainly to collect marine and land shells from every locality possible for the Australian Museum in Sydney, and the Academy of Natural Sciences of Philadelphia, U.S.A. (The latter had financially aided me.) However, lookout was kept for other phyla, especially certain groups of insects belonging to the orders Hemoptera and Lepidoptera.

Following is a brief account of the material collected, in which mention will be made of interesting or rare specimens found. I take this opportunity to thank Dr. J. Evans, Australian Museum Director, who kindly gave the information on the Leaf-hoppers collected; the late Mr. Anthony Musgrave, formerly Curator of Entomology at the Australian Museum, who likewise forwarded information on the Leaf-bugs; and Miss Margaret and Master Bill Dowling, of Dungog, N.S.W., who helped with the Lepidoptera.

The trip commenced on New Years Day with a two weeks' cruise round the Capricorn Group of Islands off Gladstone. In this already well-studied area little material was collected which would warrant mentioning in an article of this nature. However, mention should be made of several shells which were found in the stomachs of two fish caught in this area. The fish were the so-called Sweet-lip Bream, *Lethrinus chrysostomus* Richardson, and the Baldy Bream, *Paradentodon bifasciatus* Cockerell. About a dozen species were found, the commonest being *Stomatella rufescens* Gray and *Natica simiae* Deshayes. Others were the small *Gena caledonica* Crosse and *G. nigra* Quoy and Gaimard, *Quibulla adamsi* Menke and the related *Lilva cuticulifera* Smith. Another common one was *Monilea striatula* (Garrett). All were found in fish caught at a depth of about 10 fathoms and were taken wherever these fish were caught, all over the reef.

After a week at Rockhampton I went on to Bowen where, unfortunately, bad tides did not allow much marine collecting to be done. One shell worth noting was a rather good specimen of the uncommon *Tudicula armigera* A. Adams, brought in by hermit crabs from deeper water. Lepidoptera collected included the interesting Clear-wing Hawk moths, of which one species, *Cephonodes hylas*, was caught. Later, at Port Douglas, I found the eggs and larvae of this same species on the Gardenia food-plant. Some of the many species of butterflies taken included the beautiful *Danaiida affinis affinis* Fabr., *Cupha prosopis prosopis* Fabr., the lovely little fast-flying *Precis orithya albicincta* Butl., and the equally beautiful *Amblypodia amytis amphis* Hewitson. Altogether, 32 species of Lepidoptera were taken here.

Next stop was Magnetic Island, where many Leaf-hoppers, including some new species, were collected, mainly on Eucalypts and Acacias growing



plentifully there. They included the small *Eurymelids*, all species of which are attended by ants, exuding a sweet syrup which is very attractive to the ants. Some members of this group are black with brightly colored markings, while others are correspondingly drab.

This island is a butterfly collector's paradise, especially if he is from the south. The number of species found here was astounding, and I met many northern types I had hitherto not seen out of collections. The beautiful, rather rare and fast flying *Papilio agamemnon ligatus* Rothschild I caught several times. The commoner Blue Triangle, *P. sarpedon choredon* Felder, was there in literally thousands, and also very common was the Blue Tiger, *Danaida melissa hamata* Macleay. An interesting fact I noted here was that, while the small dry season form of the male Common Eggfly, *Hypolimnas bolina nerina* Fabr., was very common all over the island, the female was extremely rare. I cannot account for this, as wherever else I went in Queensland the females were nearly as common as their mates. One notable exception in the butterfly world everywhere I went in Queensland was the large Red Wanderer, *Danaida plexippus* Linne. On the whole of my travels I saw only three of these insects.

In the coral rocks of the reef on this island were found large colonies of that interesting marine aquatic spider, *Desis crosslandi* Pocock. Every rock harboured a whole colony of them, an interesting fact, as usually members of the *Desis* family do not like their own company, solitude being their wish. In a hole made by boring shells of the Genus *Lithophagus* I found commonly up to a dozen spiders, usually two or three adults, a few more medium size, and many small ones—and there might be a dozen *Lithophagus* holes in the one rock, all with a spidery compliment. This spider, described by Pocock in 1903 from specimens found under rocks in Zanzibar, has been well written up in the North Queensland Naturalist (Vol. 20: 100, March, 1952) by the present president, Mr. A. Read. There is not much that I can add to his article.

A shell was found on the beach at Horseshoe Bay, Magnetic Island, which is new to the Queensland marine shell check list. It is the rare *Akera soluta* Gmelin, which has a wide range, having been found so far from Zanzibar (type locality), Ceylon, Mauritius, Phillippines, Torres Straits and New South Wales to Western Australia. (Colman, Phillip, 1958. Proc. Roy. Zool. Soc., N.S.W., 88-9. fig.)

Some time was spent in Cairns, but very little collecting was done there. Various leaf-bugs were collected, including the shield-bug, *Bromocoris souefi* (Distant) and the very common *Physopelta famelica* Stal. Various Lepidoptera were taken including the beautiful male *Papilio ulyssis joesi* Butl., but nothing rare was taken.

I stayed at Port Douglas for three weeks, but again tides were bad, and so much rain fell I did not do very well at all. Some catches are worth mentioning. Six specimens of the recently described cone shell *Virroconus imperator* Woolacott were found in the rocks along the shore east of the wharf, and two very interesting small shells were taken from Four Mile Beach. One, a so-far unidentified *Leiostraca* was found parasiting the common sand dollar *Arachnoides placenta*, with sometimes up to six on the one Echinoderm, and the other, also unidentified, but a bivalve belonging to the *Scintillas*, which was found always, and only, in the holes inhabited by the large Mantis Shrimp, *Squilla mantis*. It lived about a foot or more down the holes, crawling (yes, a bivalve that crawls!) around the sides of the hole, completely unmolested by the larger and more ferocious host.

From Port Douglas I went inland to Atherton for two weeks, where, in various places, some interesting land and freshwater snails were collected. On Mr. Jim Bravery's property I obtained several species of snails buried deep under boulders. Among them were *Subulina octona* Bruguiere which I found in all stages of growth from the minute embryo to the full adult quarter-inch specimen, and several other species. In the Barron River headwaters near Hypipamee Crater several specimens of *Jardinella thaanumi*

Pilsbry, were taken, with some of the peculiar limpet-like *Pettancylus* sp. In the State pine forests at Wongabell, countless hundreds of the large *Xanthomelon pachystylum* Pfeiffer were found dead, together with lesser amounts of the large *Hadra webbi incalida* Ired. In the rain-forest at Kairi two specimens of the *Parmacochlea fischeri* Sm. were taken crawling on the wet plants of the forest floor. In this same forest several interesting leaf-hoppers were caught.

The final trip was by boat to Thursday Island, but bad weather and lack of time did not allow for much collecting. On Raine Island, on the outer Barrier Reef off Cape York Peninsula, a beautiful specimen of *Conus aulicus* Linne was taken, with several good specimens of *Lambis lambis* Linne. In the same spot I collected what may well prove to be a new species of *Epitonium*. This island, with many others along this part of the Barrier Reef, plays host every year to many bird rookeries. On Raine Island alone there were about eight species nesting at the time I visited it, including a small rookery (10 nests) of the graceful but bullying Frigate Bird, *Fregata ariel* Gould. Sooty and White-capped Noddies (*Sterna fuscata* Linne and *Anous minutus* Boie) and Brown Gannets, *Sula leucogaster* Boddaert, were the most common of the feathered inhabitants. Returning to Cairns I watched from the boat while about 200 Pelicans (*Pelecanus conspicillatus* Temminck) carried on the job of rearing young on their "own" island, Pelican Island.

There is still a quantity of material that I have not had time to work yet, but in this article I have attempted to mention most, if not all, of the more interesting species met.

## CHECK-LIST OF BIRDS OF THE ATHERTON TABLELAND

(Continued)

By James Bravery, R.A.O.U., and John Orrell, F.R.G.S.A., R.A.O.U.

Column One: The local name of the bird.

Column Two: The Scientific name of the bird followed by names by which it is known in other parts of Australia.

Column Three: Numbers in this column indicate the page on which reference may be made in Cayley's "What Bird is That?"

- |                                 |  |       |
|---------------------------------|--|-------|
| 61. FLYCATCHER,<br>Restless.    | <i>Seisura inquieta</i> .<br>Scissors-grinder, Grinder, Dishwasher<br>Crested Wagtail.     | (68)  |
| 62. FLYCATCHER,<br>Pied.        | <i>Arses Kaupi</i> .<br>Kaup's Flycatcher, Black-Breasted<br>Flycatcher.                   | (24)  |
| 63. FLYCATCHER,<br>Black-Faced. | <i>Monarcha melanopsis</i> .<br>Carinated Flycatcher.                                      | (25)  |
| 64. FLYCATCHER,<br>Spectacled.  | <i>Monarcha triviagata</i> .<br>Black-fronted Flycatcher                                   | (25)  |
| 65. FLYCATCHER<br>White-eared.  | <i>Carterornis leucotis</i>  | (26)  |
| 66. FLYCATCHER<br>Satin.        | <i>Myiagra cyanoleuca</i> .<br>Shining Flycatcher, Satin Sparrow.                          | (74)  |
| 67. GRASS BIRD,<br>Tawny.       | <i>Megalurus galactotes</i> .<br>White-throated Fly-Eater,<br>White-throated Bush Warbler. | (109) |
| 68. GOOSE, Maned.               | <i>Chenonetta jubata</i> .<br>Wood-duck.   | (243) |



- |                    |  |       |
|--------------------|--|-------|
| 69. GOOSE, Pygmy.  | Nettapus pulchellus.                   |       |
| 70. GREBE, Little. | Green Goose-Teal, Green Pygmy Goose.   | (243) |
|                    | Podiceps ruficollis.                   |       |
|                    | Black-throated Grebe, Red-necked Grebe |       |
| 71. GREBE,         | Babchick, White-bellied Diver.         | (224) |
| Hoary-Headed.      | Podiceps poliocephalus.                |       |
| 72. HARRIER,       | Dabchick, Tom Pudding.                 | (225) |
| Spotted.           | Circus assimilis.                      |       |
| 73. HERON,         | Spotted Swamp-Hawk, Jardine's Harrier. | (210) |
| Nankeen Night.     | Nycticorax caledonicus.                |       |
| 74. HERON,         | Nankeen Crane.                         | (248) |
| White Faced.       | Notophoxyx novae hollandae.            |       |
| 75. HERON,         | White-fronted Heron, Blue Crane.       | (237) |
| White Necked.      | Notophoxyx pacifica.                   |       |
| 76. HERON, Pied.   | Pacific Heron, White-necked Crane.     | (238) |
| 77. HONEYEATER,    | Notophoxyx aruensis.                   | (238) |
| Brown.             | Gliciphilia indistincta.               |       |
| 78. HONEYEATER,    | Least Honeyeater.                      | (169) |
| Lewin.             | Meliphaga Lewini.                      |       |
| 79. HONEYEATER,    | Yellow-eared Honeyeater, Banana Bird.  | (9)   |
| Lesser Lewin.      | Meliphaga analoga.                     |       |
| 80. HONEYEATER,    | Yellow-spotted Honeyeater.             | (82)  |
| Scarlet.           | Myzomela sanguinolenta.                |       |
| 81. HONEYEATER,    | Sanguinous Honeyeater, Blood-Bird.     | (101) |
| Banded.            | Myzomela pectoralis.                   |       |
| 82. HONEYEATER,    |  | (102) |
| Rufous Throated.   | Conopophilia rufogularis.              |       |
| 83. HONEYEATER,    | Red-throated Honeyeater.               | (103) |
| Macleay.           | Meliphaga albilineata.                 |       |
| 84. HONEYEATER,    | White-striped Honeyeater.              | (93)  |
| White-cheeked.     | Meliornis niger.                       |       |
| 85. HONEYEATER,    | Moustached Honeyeater.                 | (171) |
| Blue-faced.        | Entomyzon cyanotis.                    |       |
| 86. HONEYEATER,    | Banana-bird, Blue-eye.                 | (87)  |
| White-throated.    | Melithreptus albogularis.              |       |
| 87. HAWK,          | White-chinned Honeyeater.              | (105) |
| Collared Sparrow.  | Accipiter cirrocephalus.               |       |
| 88. HAWK, Crested. | Sparrow-hawk, Chicken-hawk.            | (206) |
| 89. HAWK, Brown.   | Baza subcristata.                      | (212) |
|                    | Falco berigora.                        |       |
| 90. HARRIER,       | Cackling Hawk.                         | (208) |
| Swamp.             | Circus approximans.                    |       |
| 91. IBIS,          | Gould's Harrier, Allied Harrier, Swamp |       |
| Straw-necked.      | Hawk, Wheat Hawk, Kahu.                | (210) |
| 92. IBIS, White.   | Threskiornis spinicollis.              |       |
|                    | Farmer's Friend, Dryweather Bird,      |       |
| 93. IBIS, Glossy.  | Letter-bird.                           | (234) |
|                    | Threskiornis molucca.                  |       |
| 94. JABIRU.        | Black-necked Ibis, Sickle-bird:        | (234) |
|                    | Pelgadis falcinellus.                  |       |
| 96. KESTREL,       | Black Curlew.                          | (223) |
| Nankeen.           | Xenorhyncus asiaticus.                 |       |
|                    | Black-necked Stork.                    | (5)   |
| 97. KINGFISHER,    | Falco cenchroides.                     |       |
| Azure.             | Windhover, Mosquito Hawk, Sparrow      |       |
|                    | Hawk.                                  | (206) |
|                    | Alcyon azurea.                         |       |
|                    | Blue Kingfisher, Water Kingfisher,     |       |
|                    | River Kingfisher.                      | (219) |

- |                                 |   |       |
|---------------------------------|---|-------|
| 98. KINGFISHER,<br>Sacred.      | Halcyon sanctus.<br>Wood Kingfisher, Forest Kingfisher,<br>Green Kingfisher.    | (75)  |
| 99. KINGFISHER,<br>Forest.      | Halcyon macleayi.<br>Macleay's Kingfisher, Bush Kingfisher,<br>Blue Kingfisher. | (77)  |
| 100. KINGFISHER,<br>Little.     | Alcyone pusilla   | (219) |
| 101. KINGFISHER,<br>Red Backed. | Halcyon pyrrropygius.<br>Golden Kingfisher.                                     | (76)  |

1st January, 1959, to 21st June, 1959

#### ADDITIONS TO ATHERTON DISTRICT BIRD LIST

- (1) *Chlidonias hybrida*. Whiskered Tern (Marsh Tern).
- (2) *Tringa hypoleucos*. Common Sandpiper.
- (3) *Hydroprogne caspia*. Caspian Tern.
- (4) *Leptolophus hollandicus*. Cockatiel.
- (5) *Haliastur sphenurus*. Whistling Eagle.
- (6) *Meliphaga flava*. Yellow Honeyeater.
- (7) *Meliphaga frenata*. Bridled Honeyeater (Mountain).
- (8) *Oriolus flavocinctus*. Yellow Oriole.
- (9) *Eopsaltria australis*. Little Yellow Robin.
- (10) *Turnix varia*. Painted Quail.
- (11) *Pardalotus melanocephalus*. Black-Headed Pardalote.

—J. V. BRAVERY.

## RAINBOW BIRD

**A**T THIS time of the year the Rainbow Bird (*Metrops ornatus*) is digging a nesting burrow. This bird is one of the most beautiful in Australia and a close examination will reveal the wonderful array of colors it displays.

This handsome bird prefers the open spaces to the thick forest country and procures its food and drink on the wing. It is usually seen sitting on a dead limb or fence post, from which it darts to catch some insect or other morsel and often returns to the same perch to await the passing of another tasty morsel. If the insect caught is large and active the bird will kill it by hitting it against the perch. A thirsty Rainbow Bird will obtain its drink of water by skimming the surface and scooping it up with its beak. Its erratic flight and graceful, swooping glides, showing the vivid bronze of its wings, is a delight to watch.

In the breeding season, October to February, the bird is often sitting near the mouth of the burrow, which is a slanting tunnel, usually, in sandy soil, from one to three feet long. At the end is a rounded cavity lined with the wings and castings of insects. The eggs are glossy white, possibly nature's reason being that they are easier for the bird to see in the dark burrow.

One peculiarity of this bird is that the young can fly as soon as they leave the nest. When they are ready to leave the mother calls them out and they come to the mouth of the burrow to take wing and quickly learn to catch insects for themselves.

Although the bird builds an excellent burrow, it does not make much attempt to conceal the entrance which is usually in a shallow depression in the ground near a tuft of grass, and is easily seen because of the mound of sub-sand taken from the burrow is of a lighter color than the surrounding surface. Even though the young fly so soon, the mortality rate is high and the remains of birds are often seen near the nesting place.



possibly due to cats waiting to pounce on the unsuspecting adult bird as it emerges.

However, the large batch of eggs—five to seven—ensure the survival of the species.

Several vernacular names are given to this bird—Spinetail, Pintail, Bee-eater and Kingfisher. The first two because of the distinctive elongated feathers in the tail, the third because it does eat bees, but they are only a minor part of its diet and the harm done is far outweighed by the amount of insect pests it destroys.

—L. V. McFARLANE

## MR. ANTHONY MUSGRAVE — OBITUARY NOTICE

PHILLIP H. COLMAN

AT 3.00 a.m. on the 4th June, 1959, Mr. Anthony Musgrave passed on. Those of us who were fortunate enough to know this man, both as a friend and in his official capacity as Curator of Insects at the Australian Museum; those who for many years have been guided by his writings; and those many others who for many years to come will benefit from his work, will mourn his passing.

Born at Cooktown, North Queensland, on July 9th, 1895, Mr. Musgrave joined the staff of the Australian Museum as a cadet on February 7th, 1910, and achieved the Chair of Curator ten years later on June 1st, 1920. His first article was published in April, 1911, and in the 48 years from 1910 until his death this year he had published 109 papers, of which six were written in conjunction with others. Several more are still in the hands of the printers. He spent many years working on the Archnidae, and is now considered one of THE world authorities on this Class of Arthropods.

A quiet, humble man, his personality and dignity endeared him to all with whom he came in contact. His sense of humor was never amiss, and many an happy hour I spent chatting with him. He was never too busy when it came to helping a novice to the entomological world.

He could not live forever, but his memory will.

## N.Q.N.C. JOURNAL — CLUB PROGRESS

APRIL, May and June, representing the third quarter of this year's activities, has experienced a prolonged spell of wet weather conditions. Nonetheless, members have been able to arrange their field days by one monthly excursion to a wild life sanctuary, one to Tinaroo Creek and one to Rocky Point, all well attended and certainly diversified in their attractions.

Large general meetings continue to prevail and enjoy screenings of interesting color slides and instructive talks, which is most gratifying to the organisers and the entertainers alike, and the Club's appreciation to those providing these attractions must be forever on record, insofar as their co-operation provides an answer to the query each month by members, "What's on?"

Council meetings also continue to be well attended, which denotes the interest and loyalty of the council's executive.

During the three months under review four more members have been approved to add to the Club's ever-growing strength and five proposed for endorsement, all with a wide range of natural history chosen for their study. Tabled exhibits at the monthly meetings, in their extensive wide range

of studious pursuits, are at times a severe test for classification by the Club's specialists, but this is concrete evidence of the members' enthusiasm and is welcomed in support to the axiom, seek and ye shall find.

Local Press weekly Nature Notes have expanded fifty per cent and have become a standard feature and as an indicator of the general public's interest. When these notes were unavoidably omitted on two occasions the cry in the land was heard: "Whaffor?" But perhaps the most heartening of the Club's activities is the increasing volume of correspondence from home and abroad received and capably attended to by our efficient librarians all of which invariably contain favorable comment upon our journal and the wish for exchange publications from kindred societies.

In this quarter two major matters have engaged the Club's attention and consideration, one of which was the indiscriminate use of firearms in the wanton slaughter of birds and other fauna, which vandalism has been the Club's concern for quite a number of years, resulting at long last in the promised co-operation by H. A. Adair, Esq., M.L.A. for Cook, who may resort to legislation in the matter; the other being the published concern by the Townsville Natural History Society over the marketing of turtle meat, with the expressed fear of turtle extinction from north of Cairns waters. This matter had been thoroughly discussed by the N.Q.N.C. some time previously and it was decided that the Club was satisfied that the situation was very far from alarming and we were content with maintaining a watching brief since when the Hon. Minister for Fisheries, T. A. Hiley Esq., has published concurrent similar views.

We have had as speakers Messrs Roff and Lavery who gave members some very interesting and informative data on fauna protection.

There is forever some branch of natural history that appeals to each and everyone and continued interest of members is the undoubted measure of success of any organisation, and the N.Q.N.C. is at present in the happy position of being trouble and comparatively worry free, and may this state of affairs continue as we wish well to other organisations and our many friends and well wishers; to witness which, and to bask in our cheerful bon-homie, may it be here emphasised that we maintain an old established welcome to visitors and representatives of other clubs to attend our general monthly meetings at the Kuranda Barracks, Esplanade, Cairns, second Tuesday, 8 p.m.

—S. DEAN

## PUBLICATIONS BY N.Q. NATURALISTS' CLUB

- |   |         |
|---|---------|
| 1. MARKETABLE FISH OF THE CAIRNS AREA ... ..          | PRICE 1 |
| 2. CHECK LIST OF NORTH QUEENSLAND FERNS ... ..        | PRICE 1 |
| 3. EDIBLE PLANTS IN NORTH QUEENSLAND ... ..           | PRICE 2 |
| 4. LIST OF BIRDS OCCURRING IN NORTH QUEENSLAND ... .. | PRICE 2 |
| 5. LIST OF AUSTRALIAN DRYOPIDAE ... ..                | PRICE 1 |
| 6. CHECK LIST OF NORTH QUEENSLAND ORCHIDS             |         |
| (Second Edition) ... ..                               | PRICE 2 |

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# THE NORTH QUEENSLAND NATURALIST



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# NORTH QUEENSLAND NATURALISTS' CLUB

Founded 1932

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**Club Officers — September 30, 1959 - September 30, 1960**

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**GENERAL MEETINGS** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** Excursion usually fourth Sunday.

**VISITORS** are welcome, especially members of Australasian and Overseas Clubs and Societies.

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**Subscriptions (Due September 30):**

City and Suburban Members, £1/5/-.  
Country Members, 15/-.  
Junior Members, 5/-.

**Treasurer's Address** — Pyne Street, Edmonton, N.Q.



## THE GENUS *HABENARIA* (ORCHIDACEAE) IN AUSTRALIA

UNTIL recent years the genus *Habenaria* was considered almost world wide in distribution, but members of what were known as *Habenaria* in the cooler latitudes of the Northern Hemisphere have been transferred to other genera and *Habenaria*, as it is now known, is practically confined to the Tropics.

This genus is a member of the tribe *Orchididae* (*Ophrydeae*) which is of the anther type *Basitonal* and indeed is the only genus of that important division in Australia, yet this is the dominant division of orchids in the cooler latitudes of Europe, distinguished, as the name suggests, by the anther being attached by its front or base whereas all other Australian genera have their anther attached by the apex.

Other fascinating features of *Habenaria* are the possession of stalked stigmas and the bases of the anther cells often prolonged into tubes.

When one is accustomed to the column-form of the remainder of the Australian genera and exotic epiphytes and terrestrials (those commonly cultivated), the reaction to the first encounter with *Habenaria* is astonishment. Unfortunately, none of the Australian species have large or showy flowers, but the examination of a specimen with a glass, by anyone lucky enough to see one, will be most rewarding.

None of our species are common, or, at least, few specimens appear to have been found, and much research remains to be carried out on them. As far as is known, they are confined to open forest land in the coastal regions of the Tropics, showing a preference for sandy soil which is usually damp.

Fourteen species are recognised in Australia, seven (7) of which are confined to Queensland, namely:—

- H. banfieldii*, F. M. Bail, Qld., Agri. Journ. 16 (1906) 564.
- H. divaricata*, Rogers and White, Proc. Roy. Soc. Qld. 32 (1921) 136.
- H. millari*, F. M. Bail, Bot. Bull. Qld. Dept. Agri. 3 (1891) 18.
- H. ochroleuca*, R.Br., Prodr. (1810) 313.
- H. ovoidea*, Rogers and White, Proc. Roy. Soc. Qld. 32 (1921) 140.
- H. propinquior*, Reichb. F., Beitr. Orchid (1871) 53.
- H. xanthantha*, F. Muell, Fragm. 7 (1869) 16.

Four are confined to the Northern Territory, namely:—

- H. holtzei*, F. Muell, Journ. Roy. Soc. N.S.W. 24 (1890) 128.
- H. hymenophylla* Schltr., Fedde Repert. 9 (1911) 212.
- H. mesophylla* Kraenzl, Orch. Gen. et Spec. 1 (1901) 204.
- H. triplonema* Schltr., Fedde Repert. 9 (1911) 435.

Two are found in North Queensland and Northern Territory:—

- H. elongata*, R.Br., Prodr. (1810) 313.
- H. eurystoma*, Schltr., Fedde Repert. 10 (1911) 248.

And one is found in North Queensland, Northern Territory and North-west Western Australia:—

- H. muelleriana*, Schltr., Fedde Repert. 9 (1911) 435.

Four names associated with Australian species would appear to be synonyms:—

- H. arnhemica*, F. Muell, Herb., which is *H. muelleriana* Schltr.
- H. ferdinandi* Schltr., Fedde Repert. 9 (1911) 435, which is also a synonym of *H. muelleriana* Schltr.
- H. graminea*, Lindl., Gen. et Spec. Orch. (1840) 318. This species does not occur in Australia, but the plant known under this name in Australia is, again, *H. muelleriana*, Schltr.
- H. trinervia*, Wight., Ic. Pl. T. (1701) is an Indian species and the plant known under this name in Australia is *H. hymenophylla*, Schltr.

# BANDICOOTS AND BANDICOOTS

BY J. L. HARRISON

**T**HE name "bandicoot" is so obviously an Australian aboriginal name that it seems a pity to have to record that the name was originally brought from India. It is in fact derived from the Telugu language spoken in southernmost India, and means "pig-rat" (pandi-kikku).

What we should strictly call the true bandicoots comprise a genus of large rats of the genus **Bandicoots** which are to be found over much of southern Asia, from Bombay to Hong Kong and from southern China to Java. They are of burrowing habit and they take very readily to living in fields and gardens so that anybody who has lived in, say, Ceylon will know of a large rat-like creature which digs up all his flower beds. So marked is this digging that the smaller species has been called the "Indian Mole Rat." In fact it has no mole-like habits. It is a fairly ordinary rat not unlike the Norway rat (which occurs in Cairns), but it happens to dig very elaborate burrows in which it lives. At one time I was trying to kill a lot of these rats in connexion with controlling the disease plague and I came to the conclusion that an average "mole rat" burrow had between ten and twelve entrances. They do not seem to feed on the roots of plants nor do they burrow for insects. They seem to come out of their burrows and feed on growing plants, seeds, and of course, when they get into suitable places, stored grain.

You will immediately see how the Australian Bandicoots got their name. Early officials with experience of the East India Company must have noticed that their flower beds were being dug up by some creature looking like a large rat and so they called it by the name with which they were familiar, a bandicoot. The difference is that the marsupial bandicoots are digging up the garden from the opposite direction. The Indian bandicoots want to make holes to live in, while marsupial bandicoots live above the ground and dig holes to find food.

It is inevitable that someone found in suspicious circumstances will be accused of a crime and so we find that the bandicoots are accused of digging up root crops to eat them and even (horror of horrors in this district!) chewing sugar cane. I have no doubt that they do all of these things now and again, but I think that basically their holes are made when they are looking for insects, and the vegetable matter which they eat is probably eaten because it has insects in it or on it. I have never managed to persuade a bandicoot to eat sweet potato in captivity, but it will thrive on minced beef and, strangely enough, bread. Its tastes in foodstuffs are evidently very human.

The marsupial bandicoots comprise a large number of species about half of which are found in Australia and half in New Guinea. Here, in the region of Cairns, we can expect to see only two species. They are:—

## THE SHORT NOSED BANDICOOT. *Thylacis Macrourus*

This is the one that is commonly killed on the roads. It seems to do very well in sugar cane areas and, as every motorist knows, is always straying on the roads at awkward moments. Although called "short nosed" the nose is only short for a bandicoot. Compared with such creatures as rats, which look rather like it, the muzzle is quite long. This species will be found recorded under a variety of names. It used to be put in the genus *Isoodon* and you will find it called *Isoodon torosus*, perhaps *I. peninsulae*, and sometimes *I. obesulus*.

## THE LONG NOSED BANDICOOT. *Perameles nasuta*.

Although about as common as the short nosed bandicoot it is not very often found dead on roads. This is the only bandicoot to be found in rain forest here, although it spreads from rain forest into all sorts of vegetation including even sugar cane. It is called "long nosed" because the nose is very long indeed. Unlike the other species it does not seem to have collected a very large set of names.



Both of these species are Australian mainland groups and *Thylacis* has succeeded in spreading to New Guinea. In return New Guinea has sent us one of its characteristic bandicoots of the genus *Echymipera*. The species *E. rufescens* has been described from the Cape York Peninsula. It has only been seen once or twice, however, and while those who look at bandicoots should keep a sharp lookout for it, I don't think we need consider it as one of our garden pests.

If we look at a dead bandicoot, how then are we to tell whether it is a short nosed bandicoot or a long nosed bandicoot? Well the difference is obvious, but rather difficult to describe without pictures.

The thing to do is to look at a lot of bandicoots in profile—stop and look at those you find dead on the road—and you will very soon spot the difference. The short nosed bandicoot has a muzzle of over 30 degrees at the tip, while the long nosed has a sharper muzzle of less than 30 degrees at the tip. An easier difference to express is the length of the ear. The long nosed bandicoot has noticeably longer ears. A convenient measure is to take the length of the ear from the tip to the bottom of the earhole and compare this with the length of the hind foot from the heel to the toe. In a long nosed bandicoot the ear is more than half the length of the hind foot, and in the short nosed bandicoot it is less than half the length. Another way of expressing it is to pull the ear forward and see if you can make the tip touch the eye. In a long nosed bandicoot the tip will just about touch the eye. In the short nosed bandicoot it comes nowhere near it.

Owing to their habit of digging up gardens bandicoots have gained a very bad name, and that name has been further blackened by their undoubtedly being concerned in such diseases as scrub typhus and Weil's disease. In some parts of Australia they seem to be in danger of extinction but here in the North of Queensland they seem to have accommodated themselves so well to the vegetation caused by farming that I can see no danger of their extinction, even were the present severe law protecting them relaxed, and we can look forward to having these entertaining little animals with us cheerfully digging up our gardens for generations to come.

## THE YELLOW FIGBIRD

MARION L. CASSELS

ANOTHER bird common to our city is the Yellow Figbird (*Sphecotheres flaviventris*, *Sphecos wasp theas*, I. Hunt, *Flavus yellow venter belly*). The male is a handsome bird sporting a black head, olive green back, yellow breast and red eyes. His wife is not so gaudily attired, having a brown back and brown and white speckled breast. They can be seen around home or public gardens feeding on fruits and berries.

During the non-breeding season only an odd one or two are seen flying through our garden, but comes the mating season, and suddenly there is bedlam. Large numbers of birds arrive to the Big Tree and chase each other and other species of birds round and round through the trees, all the while calling loudly, "Oh! You beaut! Oh! You beaut, you beaut, you beaut, you beaut! Come yer, come yer, come yer!" All day long this goes on until at long last they pair off and the serious business of nest building is begun.

No time now for chasey through the trees. One pair elected to build their nest in the big tree just where we were able to watch them from our living room. They selected an outer branch of the tree about thirty feet up. Mrs. Figbird alone did the building, which is not to say that Mr. Figbird went off to enjoy himself. As she built her little shallow basin of vine tendrils and twigs, he mounted guard on a branch overlooking the nest site. If I ventured under the tree to get a closer look at the building he

would call out quickly to his wife, who straight away stopped work and flew up and stood beside him. When she flew away for more nesting material he always flew as her escort and on their return would stand vigil once more.

The little nest was very fragile, having no lining. In a little less than a week the nest was made and on two successive days, an egg was laid. These could clearly be seen when standing underneath. Now Mr. Figbird's vigil was over and he and his wife took part in the incubation, which lasted for twenty-one days.

Two young were successfully hatched and both parent birds had a busy time providing for the two hungry mouths. The babies would lie quiescent in the nest until they heard or saw mother or father appear, then up would pop two little heads with mouths agape. The young birds grew rapidly and by about fourteen days were nearly the same size as their parents, and as I watched their excited movements at feeding times on the shallow little cradle, I was hourly expecting to have to run to the rescue of a falling bird. However, they managed to preserve their balance.

It was not possible to say what sex the fledglings were, as at that age both sexes resemble the female. It is quite some time before the male gradually acquires his lovely colors.

On the fourteenth day when I looked up at the nest both fledglings had gone. As the parents had also gone, and were not flying around in any distress, it is possible that the parents had taken them nearer to their food supply. How, I don't know, as never at any time did I see the fledglings make any attempt to fly. And so, once more there is peace in the garden, just our usual friends—the magpie larks, friar birds, doves and willie wagtails—until the breeding season starts again.

## OUR STATE FLORAL EMBLEM

THE announcement that the "Cooktown Orchid" was to be gazetted the Queensland floral emblem, must have delighted almost every resident of North Queensland, particularly members of this Club, as it is a widespread species with a beautiful flower and lends itself to cultivation in most parts of the State. (Let us hope that this does not lead to further vandalism in its native haunts.)

Following the above announcement, a relevant article appeared in "The Cairns Post" stating that the Queensland Government Botanist had quoted that the correct name of this plant is *Dendrobium phalaenopsis*. This caused some concern to numbers of interested parties, as this name had been discarded for many years by most notable botanists. The following week "The Australian Women's Weekly" contained an illustrated article (author not indicated) quoting the name of the plant as *Dendrobium bigibbum* Lindl. and referred to *D. phalaenopsis* as a synonym of *D. bigibbum*. Dates of publication of both of these names were given.

F. M. Bailey, Qld. Flor. 5: 1524 (1902) quotes a *D. bigibbum* var. *phalaenopsis* and this was supported by Rupp and Hunt, Proc. Linn. Soc. N.S.W. 72: 239 (1948). Later, St. Cloud, Nth. Qld. Nat. 24: No. 115 (May, 1956) considered "phalaenopsis" merely a form of *D. bigibbum* var. *bigibbum*.

Doubtlessly it is desirable to have the correct name gazetted when such time arrives and a voice from the North (the home of the orchid) particularly from this club, should be timely.

When a State floral emblem is chosen, one of the major considerations of the selectors would be selecting a plant with a relatively wide distribution and surely they would have had in mind the species as a whole, not merely one form of it. Consequently the author of the article in "The Australian Women's Weekly" is to be commended on his stand.

Rupp, in private conversation, expressed the opinion that "the form



known as phalaenopsis" was merely a large flowering form of the species *D. bigibbum*, an opinion endorsed by the present author in the light of material seen since becoming resident in North Queensland.

Horticulturists, understandably, are anxious to have names to distinguish variations of a species (but these are sometimes not of botanical significance) and are loth to relinquish names of long standing, but these matters should not be allowed to influence the retention of the correct name of the species of a State floral emblem.

From the above we would therefore have the name of the "Cooktown Orchid": *Dendrobium bigibbum* Lindl., Paxton, Flower Garden 3: 25 (1852), and as a synonym *D. phalaenopsis* Fitz., Gard. Chron. 2: 38 (1880).

—A. W. DOCKRILL

## WINNING ENTRY—H. FLECKER MEMORIAL NATURAL HISTORY MEDALLION

### NOTES ON THE GREEN TREE ANT

BY MARY KULAKOWSKI.

ON THE TOP of a comquat tree fully eight feet high is what looks like a huge green football. It is approximately eight inches long by five inches wide, slightly oval in shape. On closer examination it is observed to be ingeniously made by gluing the leaves together with a white substance.

If one should venture to tap this football with a finger one would soon find the nest, for such it is, covered thickly with furious ants. These ants are about one third of an inch long, and a lovely light green in color. They have six powerful legs upon four of which they stand as they wave their fore-legs in the air, with their pincers wide open. The abdomen of the ant is covered with fine hairs and their body is almost transparent when examined under the microscope. Their fore-legs are equipped with two sharp spikes at the joint, which are, no doubt, of great use to them.

If your finger should be within reach they will swarm madly on to it. The sting is quite sharp but not nearly as bad as a wasp sting. On some people the sting area may form a lump, but not as a rule. Once the ant has fastened on to you it hangs on like a bulldog and won't let go. On more than one occasion I have angrily pulled at the body of the ant, leaving the head still embedded in the skin.

I wished to see just how their nest was made so, I took a pair of tweezers and pulled one of the leaves from its fastenings on the nest. Instantly the nest was swarming with ants until it looked like it was made of fur. About a quarter of an hour later when the alarm had died down and the ants had nearly all dispersed, a row of ants lined up along the edges of the leaf. The leaf had sprung roughly one and a half inches from the nest, so I was kept guessing as to how they would replace it. Several ants gripped the leaf in their jaws and hung with their bodies dangling in the air. The other ants came and gripped behind the waist, until a living chain of ants was constructed to the nest below. Ants on the nest commenced to strain and heave until the leaf was gradually being pulled towards the nest. Just at that moment a strong breeze blew and the leaf sprang apart once more. With stubborn patience the ants repeated the operation, this time successfully. When at last the leaf was drawn into place a single row of ants was able to hold it there. The majority of the assisting ants vanished.

Some time later one ant came along, carrying what seemed to be a white grub, which was in truth one of the ants' many baby sisters. The

ant placed the baby on one leaf and moved it alternately from one leaf to the other. After a while I was able to see that the baby was emitting a fine misty white silk with which the worker ant was sewing the leaf back into place. Soon the baby could produce no more silk. Whereupon the ant hurried away to replace the non-productive baby with a fresh one.

At the foot of the cumquat tree a steady stream of ants is engaged in dashing backwards and forwards to and from the nest. One busy ant carried a dead comrade from the nest, another few ants were struggling to pull a dead cicada's head to the nest, others carried bread crumbs, dead insects, etc. Sometimes I was even lucky enough to see them carrying their precious eggs to and fro.

The green tree ant is obviously partly carnivorous as at one stage I saw them attacking a half dead blowfly. When they had killed it, they pulled it a distance of six feet to the foot of the tree, then they commenced to heave it right up to the nest.

This species of ant is very ceremonious with it's dead. A friend of mine once sprayed a nest with an insect killer while spraying the orchard. The following day I saw that the few survivors were busily engaged in carrying their dead comrades to the ground where, about one yard from the tree, they lay the little corpses of their dead bretheren in a little heap.

Some of these ants are also shepherds looking after aphids as we do dairy cattle. Aphids are a pest to the orchardist as they are a scale insect, one sixth of an inch long, which live mainly on the leaves of citrus trees. I first discovered the aphids one day when my attention was attracted by a small nest or shelter made out of silk only. Upon inspection I found that nearby was a group of aphids amongst which stalked several ants. These ants tended their flocks with utmost care. The ants eat the honey-dew which is produced by the aphids in abundance. To get this the ant gently strokes the aphid on the back with its antennal.

As well as building shelters to protect these insects, the ants also build fences to keep them in one spot where they can't stray. This is done in the usual way of sewing some leaves together to form a stout barricade to keep the aphids in and out of trouble.

These ants truly are the most intelligent, industrious little creatures that I have ever come across.

## THE SPANGLED DRONGO

MARION L. CASSELS

**M**OST of us are familiar with the Spangled Drongo, which is often seen about suburban gardens and in the bush. He is that lovely bluey black satiny bird with a black velvet cape and hood, red eye and fish's tail. He thoroughly deserves his scientific name—*Chibia bracteata* Drongo—like a shining metal plate. You would probably not recognise the young. I did not until I saw the parent birds feeding a pair. They are light and dark brown speckled, big blue bill, no red eye and no fish tail.

Their nest is a shallow cup of vine tendrils, slung to a forked branch by spiders' web. I have seen one hanking on the wire stay of a telegraph pole and another on the crosspiece of the pole.

The Drongo has some peculiar, harsh grating calls and whistles, and with some of them his whole body and wings jerk and jitter. He is rather a pugnacious fellow, not much liked by his fellow birds. One day I watched him chase a Blackfaced Cuckoo Shrike, which had a large grasshopper in his beak. They flew through the trees and up and down till the Drongo tired and the Cuckoo Shrike was able to feed in peace.

Another day it was a Rainbow Bird which got his attention and the two of them flew higher and higher into the sky with the Rainbow Bird outmanoeuvring the Drongo all the time. The time and energy expended



chasing other birds for their hard-earned meal must be far greater than if he went after the prey himself.

He also eats the young nestling if the parent birds are not very watchful. A scene was described to me where it seems a young Drongo attacked an Indian Turtle Dove nestling, the parent Drongo coming down to give a hand. However, they were disturbed and dropped their victim, though not before its head had been torn off.

The other day whilst in the laundry, I was watching outside in case anything interesting happened in the garden. I saw a Drongo and it looked as if he had a small bird in his claws—a Peaceful Dove, I think. The dove was hanging head down, the Drongo claspings its claws with his claws. I ran outside and saw that the Drongo had taken his victim to the lemon tree next door. It was perched on a branch with the little bird head down still, and was calmly plucking the feathers out. Not knowing if the dove was dead or not, I got my son to disturb him, hoping to see him drop the dove. However, the Drongo, still clasping his “breakfast” firmly in his claws, flew away to another tree.

He is also the enemy of our “Mrs. Spider,” who complained bitterly to me that when she had released several nice big female spiders in her back garden, hoping for them to get established so that she could study them, “your friend the Drongo flew down and snapped them up.”

Another club member tells me of a canary in a cage which, when the Drongo comes down to his cage, falls to the bottom of the cage in a “faint” and does not recover for some time.

So it seems Mr. and Mrs. Drongo are the gangsters of the bush and not very popular in any quarter.

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## BARKING SPIDER—*Selenocosmia* (sp.) *Aviculariidae*

THE 1st March an extremely large arachnid was unearthed at a depth of six inches at Mt. Mulligan and forwarded to me to mount and preserve for the Cairns Ambulance. I was very interested in this specimen as it was the largest spider I had ever seen. I had received two females of this species previously but was unsuccessful in keeping them alive. Then I received four more that had been captured locally and one was a very robust male.

While feeding him one night he became agitated and, raising himself on his hind legs, emitted the true characteristic whistle of the barking spider. This I would describe as a rasping whistle, the same sound as produced by children when first learning to whistle, as they blow through their teeth. I have heard it many times since but only from the males. Unfortunately he did not like life in captivity and became sickly, so I preserved him to keep my specimen.

I have established two different species of *Selenocosmia* but so far have been unable to have them typed. One is a large brown specimen extremely hairy, with stout body and legs and at times very aggressive. The hairs have an iridescent sheen. The other species is slender bodied, very long legs, with the tarsus and femur a rich chocolate brown.

On March 18th I was awakened about 3.20 a.m. by a strange noise and on investigation found my spider pacing her box, drumming her fangs alternately on the floor of her cage, clearly audible at twenty feet. Since her capture I had tried all methods of feeding known to me to no avail. She just refused to eat. Realising she was hungry and in search of food, I tied a small cube of raw steak to a length of cotton and waved it before her. She backed away and then attacked, driving her fangs through the meat three times, and then she settled down to feed, after fasting for seventeen days. She fed for four hours, kneading the meat with her fangs to extract the juices and leaving the meat white and bloodless.

March 23rd I installed her in an observation jar of slightly moist earth and placed a handful of stones in a heapon top. The first night she began work at 10.15 p.m. and arranged some stones in a quarter circle from the heap to the wall of her jar. Next she made a depression within this quadrant and lined it with silk, where she remained until the next night.

March 24th, half buried under mound of stones, she began her burrow. By tying a heavy black cloth around the jar, I was fortunate to keep her working right at the wall of her jar, where I could record her every movement. Working nightly, she completed a slanting tube to the bottom of a ten-inch observation jar in five nights.

March 29th, tube completed to her satisfaction, she commenced to build what is known as her living room, but what I term her dining room as I have only seen her enter it to eat. I place her meat tied to cotton at the mouth of her tube and she takes it to her dining room, feeds, and then carries the remains to the entrance and casts it off. Occasionally she will deposit remains at the far end of her burrow where it stays until the stench is overpowering, hence the cotton to retract it if need be without disturbing her tube. Her dining room is quite a large cavity, giving her plenty of room for easy movement.

April 2nd, she extended her dining room, tube fashion, around the bottom of her jar for seven inches. I was unable to establish her purpose. I observe her work by torchlight, as all work ceases as soon as the electric light is switched on.

Her method of removing the soil from the tunnel is most interesting. She crawls down the tube head first, and on reaching the point of work, she moves backwards using her fangs (slightly spread) and pedipalps like a four-pronged rake. She rakes up a ball of earth and, holding it in her mouth, supported by fangs and palps, she begins her ascent through the tube, stepping backwards all the way. When she emerges through the entrance she turns, deposits her load and, using her palps alternately, she pats flat the small marble of earth, then back head first for the next load.

After each second load, as she returned to the working area, her four spinnerets were busily engaged spreading their ribbons of silk to reinforce where she had removed her two previous loads of soil.

The whole tube is lined with a fine webbing and this is all that prevents a cave-in of roughly fourteen pounds of soil.

It took her twenty nights of extremely hard, continuous work to complete to her satisfaction her ground retreat.

I have kept specimens of female *Selenocosmia* alive in captivity for six months, but the males will not thrive, as they seem to be wanderers and confinement for study purposes is very hard.

A description of one of this tribe was described in a publication of the North Queensland Naturalists' magazine, 1st September, 1957.

—MRS. M. HALL



## EDITORIAL

WITH this number of the N.Q.N.C. Journal an overdue improvement has been effected in its general presentation, providing information as to contents, Club staff and Club activities, thus bringing the Journal's format to the standard of journals of kindred clubs and societies of other Australian States.

The Editor is confident, the improvement will be appreciated by members and those of clubs on our journal exchange list.

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## CLUB ACTIVITIES—FIELD DAY

ON SUNDAY, 20th September, the Club's monthly field excursion was held, five cars leaving from the President's residence soon after 9 a.m. for Fishery Falls, 26 miles south of Cairns, main coast road, between Gordonvale and Babinda.

At the Fishery Falls Hotel the turn-off, right, was followed, the grass-grown but trafficable road ascending gradually for half a mile to the creek gorge.

Another quarter mile on foot along a gradually ascending 12-foot wide clearing in the rain forest jungle led to the Cascade Fall of about 40 feet at the foot of which is a pool between granite walls in which our junior members were soon enjoying themselves in the rather chill mountain water.

Bright morning sunshine gave perfect conditions for photographs of the falls and gorge.

No birds were seen, but a few could be heard calling from the tree tops, some of which bore clumps of ferns and orchids.

Mrs. M. E. Hall, the Club's arachnidist secured specimens of four spiders, including the stick spider, *Tetragnatha*, water spider, *Dolomedes*, and a black and white spotted sheet web specimen to be identified.

Specimens of the stinging plant were seen along the sides of the jungle path, and of the lawyer vine with its sharp hooks, climbing to the tree tops, besides many varieties of tropical palms and ferns.

Altogether an enjoyable and interesting day.

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## CLUB HANDBOOKS

Check List of North Queensland Orchids, 1953	2/6
Check List of North Queensland Ferns	1/-
Edible Plants in North Queensland	2/-
List of Birds Occurring in North Queensland	2/-
Marketable Fish of the Cairns Area	1/-
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# THE NORTH QUEENSLAND NATURALIST



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# NORTH QUEENSLAND NATURALISTS' CLUB

Founded 1932

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**GENERAL MEETINGS** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** Excursion usually fourth Sunday.

**VISITORS** are welcome, especially members of Australasian and Overseas Clubs and Societies.

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# OBSERVATIONS ON ADULTS AND JUVENILES OF HEMISPHAERIODON GERRARIDI IN CAPTIVITY

BY DANIEL C. WILHOFT

OWING to the limited literature on this particular skink, the recording of a few observations made on it in captivity might be of value. Its vernacular name is long-tailed skink, although at one time it was referred to as pink-tongue skink.

Two specimens were collected. The first an adult male (109 gm., 130 mm. snout-vent, 125 mm. tail) was taken on August 20, 1959, from a stone wall in front of a dwelling in East Innisfail. Although this was in a rather built-up residential section of town, there occurs within a short distance an area of rainforest and a freshwater swamp. This specimen was well marked, the dorsal ground color being a slate grey, with very definite and regular black bands extending over the back in the form of saddles. These bands extended from the head to and down the length of the tail. Ventrally the colour was a cream with faint suggestions of pink, especially around the pectoral and pelvic girdles. When first observed the specimen was retreating into a shallow hole in the wall from which it was readily persuaded out with an index finger. This specimen never exhibited any tendency to bite or show any other aggressive behaviour, similar to what is often observed in blue-tongue skinks (*Tiliqua scincoides*).

The second specimen was an adult female (114 gm., 195 mm. snout-vent, 160 mm. tail) taken on November 9, 1959, from a small shed on the edge of a freshwater swamp at Goondi Hill in Innisfail. The female, although of the same ground colour dorsally as the male, did not exhibit the black crossbands except as very faint traces, especially on the lateral surfaces. Ventrally she was much the same as the male. As in the case with the first specimen no aggressive behaviour was observed at any time.

Both adults, when placed on a smooth surface, such as a polished wooden floor, exhibited a characteristic lizard-type of locomotion. But when placed out-of-doors on grass or similar substrate their method changed somewhat. The forelimbs maintained the regular pattern of alternating each leg progressively, but the hindlimbs were held straight back along the body and tail while the entire back section of the body underwent a serpentine sidewinding motion. This combination of locomotory patterns seemed to measurably increase the speed of the skinks' progress through grass, etc.

The adult skinks fed well on mice meat and either milk or water. Milk seemed to be much preferred over water. The two skinks were at no time left together and on December 1, 1959, the male was sacrificed for an alcoholic museum specimen.

On December 19th at 0600 hours the female was discovered in the process of giving birth to young. This took place quite easily apparently, the female merely placing both hind legs against her body in much the same position as when moving through grass and the young issued forth periodically. Usually, that is at least twenty times. The births were single, that is one young at a time, and between births the adult would walk around the cage for short periods. The young were born curled up alive in small transparent sacs, which usually ruptured, allowing the juvenile to crawl out. The first action upon emerging from the sac was to eat it. Once during observations three young were born almost together only seconds occurring between them. These three had an especially difficult time in releasing themselves from the sac-like birth membrane, but after what appeared to be a tremendous struggle freedom was gained. At 2300 hours that evening thirty-three young were present and this constituted the entire brood.

The young greatly resembled the captive male in coloring, with even more intense black bands, and apparently less ground color. It is

interesting to note that the vernacular name, pink tongue, was later changed to long-tailed because of the amount of variation in tongue colour and not one of these young had a pink tongue, although the adult female very definitely did. The young were immediately active after birth and used their tongues almost continuously to gain olfactory impressions of their environment. The female, who showed no interest whatever in her progeny was removed on the next day should her interest develop into something predatory. The young, whose average weight was 2.5 gm. and snout-vent measured 55 mm. (overall length 95 mm.) ate freely of mice meat on the second day and continued to do so. It was amazing to observe the size of meat particles these young skinks were able to take. Often pieces twice the size of their heads were attacked and worked on until they were forced down. Both water and milk were taken freely.

Thanks are due to Mr. G. Mack of the Queensland Museum for providing positive identification of this skink.

## HONEYEATERS OF THE ATHERTON DISTRICT

**T**HE family Meliphagidae, comprising sixty eight (68) species, is well represented in the Atherton areas, which have approximately thirty (30) species, rain forest, open forest, heath lands, providing abundant nectar, insects, small fruits and berries.

Ranging in size from four (4) inches in the small, beautiful Scarlet Honeyeater, *Myzomela sauguinoleuta*, to over thirteen (13) inches in that remarkable, noisy, pugnacious species, Noisy Friarbird, *Philemon corniculatus*, sometimes called Leatherhead.

Carefree and happy are the Honeyeaters as they wander through the bushlands feeding on the nectar of Eucalyptus, Turpentine, Paperbarks, Bottlebrushes and many flowering shrubs. Possessing curved and long, slender bills, brush tongues, they move quickly from flower to flower, performing many acrobatic feats, at times feeding upside down.

Some species, including Scarlet Honeyeaters, Friarbirds and Banded Honeyeaters, are nomadic and travel great distances following the nectar flow. Other species such as the White Cheeked are more or less confined to a particular habitat. White Cheeked preferring a low-lying, swampy habitat. Lewin H. can be found in many areas and if not seen can be heard, his ringing call being a feature of the bush. Macleay species, a rare one, is confined to Rain Forest areas and rarely seen. The small Brown Honeyeater has a seasonal movement to coastal areas in the autumn months, returning to breed; the small, cup-shaped nest usually overhangs water and contains two eggs.

Most Honeyeaters have a limited song range. Friarbirds in particular have harsh chattering voices, other species weak, piping calls. The Brown Honeyeater has a song range equal to any other species, and the Scarlet species a tinkling, pretty song and can be heard even when other species are silent.

The *Melithreptus* group, known as Blackcap, are a very interesting group of medium size and more or less similar in color, upper parts being olive yellow with black crown, a white band across the nape. Each of the local species, three (3), can be recognised by the color of the naked skin around the eyes. Mainly confined to high treetops they will at times be seen in dwarf ti-trees.

Some species, such as the Yellow Honeyeater, Banded Honeyeater and the Blue-faced, visit town gardens and the Lewin is a regular visitor when Hibiscus shrubs are in bloom.

Generally the breeding season is more or less governed by the flow of nectar and has a range from June to April locally.

—J. A. BRAVERY



## AN ORNITHOLOGICAL PROBLEM

A GROUP of modern systamaticists have defined a set of fairly flexible rules which somewhat change the old species definition. For the purpose of this article, at this point, it is enough to say that many species defined, primarily on morphological grounds, are now considered but geographical races or subspecies of some other closely related species and two or more such old species are then often combined to form a so-called superspecies.

For example, in reviewing birds in particular, forms differing in colour and geographical range but agreeing otherwise structurally, physiologically and ecologically were given full specific status. Under the new systematic conception, colour and range are of minor importance if the other three criteria are in accord. The fact that there is no overlap in range and thus no direct evidence that the two forms differ biologically, usually, genetic distinctions are sufficient for the trained systamaticist to make his classification and if evidence is in agreement the forms will be considered discontinuous varieties or geographic subspecies. If any of the above criteria is at variance these forms must be considered borderline cases which through such discontinuous distribution are on the way to becoming, or have already become distinct and are then generally known as *allopatric* species. In the event that the geographic range of two such forms overlap and they remain biologically isolated, such forms attain full specific rank and are known as *sympatric* species.

One such complex exists in the *Meliphagidae*, that family of primarily nectar-eating birds, whose centre of dominance is in the Australian region. Three species, under the old concept, are involved and belong to the genus *Meliphaga* and are the Singing Honeyeater (*M. virescens*), Mangrove Honeyeater (*M. fasciogularis*), and Varied Honeyeater (*M. versicolor*).

*M. virescens* inhabits most of the drier interior of Australia extending to the coast in the low-rainfall areas, particularly in Western Australia. Both *fasciogularis* and *versicolor* are primarily birds of the mangroves, never venturing more than a mile or so from tidal waters, at least, within Queensland. The Mangrove Honeyeater ranges from about Stuart's Point, some miles south of the mouth of the Macleay River, in New South Wales, to Townsville in Queensland. The Varied Honeyeater extends from somewhere in the vicinity of Cardwell in Queensland to New Guinea in the north. The Singing Honeyeater is said to inhabit scrublands of Mulga, Mallee, etc., in the interior and no doubt also mangroves where it reaches the islands and coastal areas in the west.

It will be noted that, ecologically, these forms do not differ greatly. All are nectar sippers who vary their diet by eating insects and other forms of lower life. All appear to prefer a moderate to low, bushy growth in which to nest and generally inhabit. Climatically, a greater variation is apparent but then, many easily identified species within the same family range through extremes of rainfall and temperature. In fact the colour changes within the complex could be attributed to Gloger Effect; namely the relationship between rainfall and humidity, colour variants of a species becoming brighter in colouration as rainfall and humidity rise.

Morphologically, and without considering organic structure, all are of about the same size and much the same shape: colour differs, and is more fully described broadly and as would be observed in the field in a tabulated form below. It does not appear to vary to any noticeable degree throughout the whole range of each form, though no data are available on *versicolor* in New Guinea. Birds of this form observed at Horn Island in Torres Strait appeared to be lighter overall which would be consistent with Gloger Effect, and in a genetic sense accords with close relationship.

Physiologically, all nests are of the more usual Honeyeater type, being suspended cups, and are placed among the foliage of bushy trees: *virescens* is said to have two to three eggs to the clutch while two is the usual clutch of both *fasciogularis* and *versicolor*. It is said that there is

little difference in the breeding season, nidification taking place between July and December though it is probable that the Singing Honeyeater's breeding is effected more by rainfall than by the yearly cycle. The courtship pattern of the mangrove dwellers is identical and in the main consists of much darting through bushy foliage with interceptions, and short rest periods within such foliage, with much noisy calling while the birds are in motion. Calls, apparently, are very alike though the Singing Honeyeater is reputed to have the least musical notes, while the Varied Honeyeater's are louder and somewhat sweeter than those of the Mangrove Honeyeater which itself is no mean songster if the repetition of a few notes is not considered too monotonous. There is no noticeable difference in the flight rhythm of *fasciogularis* and *versicolor*; it is fast and undulating with a rapid wing-beat followed by a slight pause.

The geographical range of any of the three forms, as far as is known from information available, does not overlap and this forms the crux of the problem. Thus there is no information of one form intergrading into either of the others nor is it known if they are biologically isolated. No records to hand report the Singing Honeyeater from eastern coastal Australia and it is known that neither of the mangrove dwellers venture far from tidal areas. Again, no information can be obtained on the Mangrove Honeyeater north of Townsville or on the Varied Honeyeater from south of the Cardwell district which leaves a coastal gap, still containing the same form of mangrove habitat, of some 75 miles.

A much clearer picture of the relationship of the latter two forms could be obtained if ornithologists would make a survey of this rather restricted area and obtain information, mainly through colour variation, that would answer the following questions:—

- 1. Do the two forms intergrade? In such case they would be but two geographic races (subspecies) of a single species, showing a colour cline through a limited part of their range.
- 2. Do they overlap in range, but do not interbreed? This would prove that they are biologically isolated and good (sympatric) species; colour distinctions should remain constant.
- 3. Is there a region in which neither exists? In this case they would be geographically isolated forms and could be considered either allopatric species, or geographic races of the same species and would be in agreement with the borderline condition discussed earlier in this article.

Major Colour Variations in *Meliphaga* Complex under Review

Colour	<i>M. veriscentes</i>	<i>M. fasciogularis</i>	<i>M. versicolor</i>
Above	Greyish-brown.	Greyish-olive green.	Olive green tinged with yellow.
Below	Streaked buff and grey.	Light brown streaked with dark brown, particularly throat and breast.	Yellow streaked with olive green; almost white throat.
Ear-patch	Yellow tipped with white. (Prominent.)	Yellow tipped with white. (Prominent.)	Yellow tipped with white. (White only prominent.)
Wing Primaries	Greyish-brown tinged with yellow.	Olive green tinged with yellow.	Much as the rest of upper parts.
Rectrices	Greyish-brown tinged with yellow.	Brown, very lightly tinged with yellow.	Much as the rest of upper parts.

The bill, in each instance is short and decurved, but no records are available of the colour of either the bills or legs except of the Singing Honeyeater which has a black bill and light grey-blue legs.



In the event of any ornithologist following up this problem I would be pleased to supply such further data as I have and would be interested to know the results, irrespective of their being positive or negative in character.

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—L. AMIET

## A NEW SPECIES OF TAENIOPHYLLUM (ORCHIDACEA)

FROM THE TABLELANDS OF NORTH QUEENSLAND

BY A. W. DOCKRILL, EDGE HILL, CAIRNS, QLD.

### TAENIOPHYLLUM FLAVUM Spec. Nov.

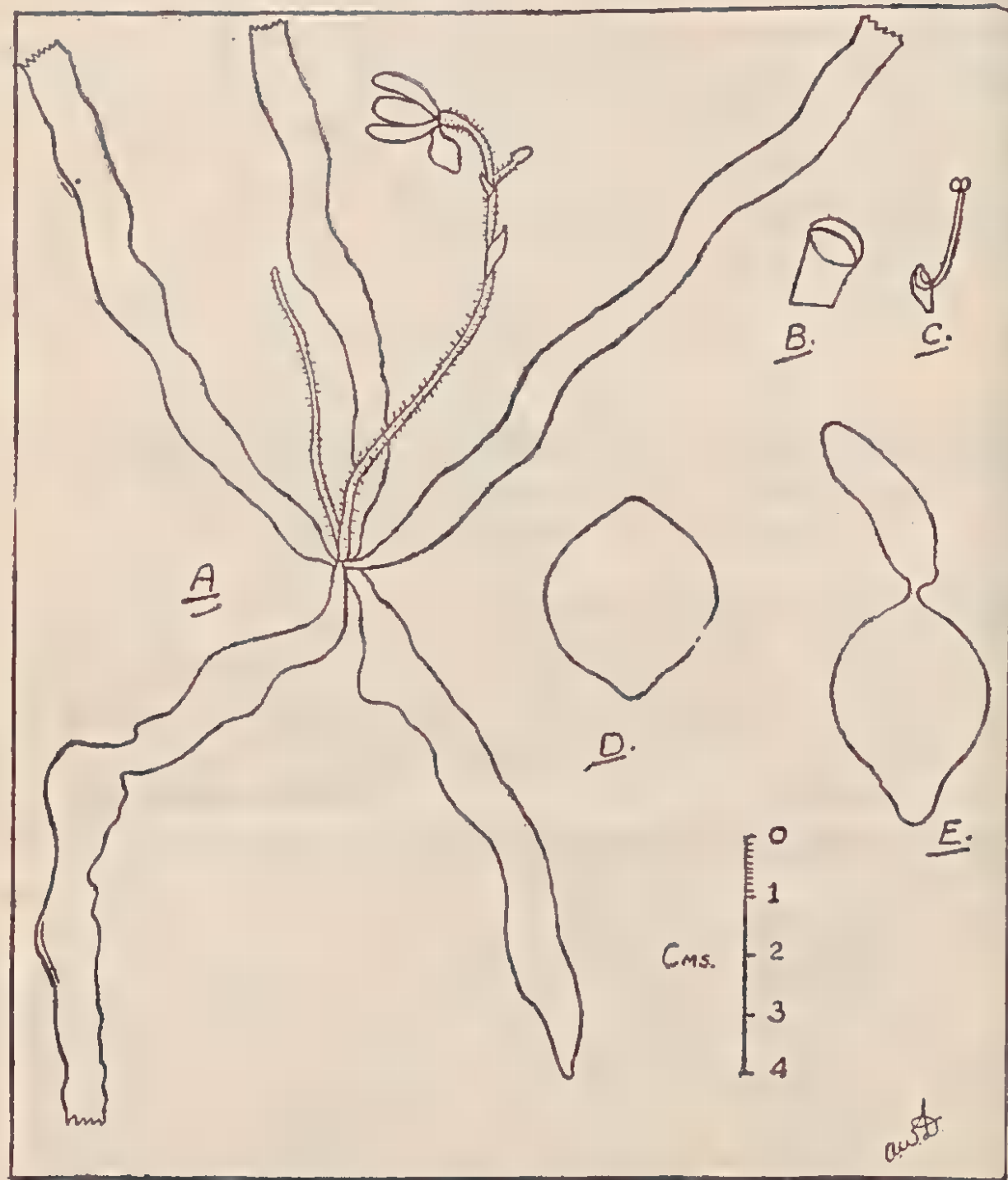
Planta efoliata. Radices c. 1.5 mm latae. Pedunculus c. 18 mm longus, papillosus; papillae albae, subglandulae; bractus in pedunculo altus, ovatus-actus. Pedicelli 2, c. 2 mm longi, papilloso sicut in pedunculo; bracti multo minores bracto pedunculi. Flores flavi, segmenta non coniuncta. Sepala similia, c. 2.5 x 1.0 mm (in plano), anguste cymbiformia. Petala c. 2.0 x 1.5 mm (in plano), obtuse cymbiformia. Labellum (sine calcar) c. 1.5 x 1.5 mm, columnan amplexans; cymbiforme, marginibus lateralibus involutis; sed in plano suborbiculare. Calcar c. 2.0 x 1.25 mm, ovoidum, erga extremum angustius. Columna c. 0.5 mm longa, viridis. Anthera alba; caudiculus pellucidus, loratus; discus viscidus ovatus-actus.

HOLOTYPE: North Queensland, Ravenshoe District 6/9/1958 (Leg.: K. Wadsworth, J. H. Wilkie, S. F. St. Cloud, T. Bentley and A. W. Dockrill). Bot. Mus. and Herb., Brisbane.

Plant leafless, roots up to 1.5 mm. across, flat. Peduncle up to 18 mm. long, filiform, papillose, papillae white, subglandular; bract high on the peduncle, about 1 x 1 mm, ovate-acute. Pedicels 2, up to 2 mm. long, including ovary, papillose similarly to peduncle; bracts much smaller than that of peduncle. Flowers bright yellow, expanding, but not widely so, segments free. Sepals similar, about 2.5 x 1.0 mm. when flattened, narrow-cymbiform. Petals not quite as long as sepals but broader (about 1.5 mm. when flattened), obtuse-cymbiform. Labellum, excluding spur, about 1.5 x 1.5 mm., column-embracing, sub-cymbiform by lateral margins being involute, but sub-orbicular when flattened; spur about 2.0 x 1.25 mm., ovoid and contracted at narrow end. Column about 0.5 mm. long, green. Anther white; caudicle lorate, translucent; viscid disc ovate-acute.

The Free segments of the flowers of this species distinguished it from the other four Australian species, *T. muelleri* Lindl, *T. cymbiforme* Hunt, *T. wilkianum* Hunt and *T. lobatum* Dock. Perhaps it has most affinities with *T. wilkianum* Hunt, but no leaves are present, the peduncles are hispid

instead of smooth and the spur of the labellum is set at a different angle and it is larger and is much contracted at the base instead of being broad and the sepals and more particularly the petals are not acute. It is readily distinguished from the only other Australian species with hispid peduncles, *T. lobatum* Dock, by the larger size of the flowers which open more widely, entire instead of lobed lamina of the labellum and much larger spur which is almost globular and much contracted at the base rather than cylindrical.



**TAENIOPHYLLUM FLAVUM Dock. Spec. Nov.**

- a. Whole plant x 5.
- b. Column x 20.
- c. Viscid disc, caudicle and pollinia (greatly magnified).
- d. Lamina of labellum, flattened x 20.
- e. Labellum from the side x 20.



## THREE POISONOUS BROWN SNAKES

**Q**UITE a lot of confusion is evident from time to time in relation to the correct identification of the three Brown Snakes—namely the Taipan (*Oxyuranus scutellatus*) the Common Brown Snake (*Demansia textiles*) and the King Brown or Mulga Snake (*Pseudechis porphyriacus*).

The Taipan is to be found along the whole of the Queensland coastal areas right through to the tip of Cape York Peninsula and inland for approximately 40 miles—to my knowledge it has not been found west of the Great Dividing Range.

The Taipan is a large snake with a recorded length of 11 feet. Unlike the Brown Mulga Snake, its head is long and narrow with a distinct canthus and is quite distinct from the neck. It has long jaws which enables it to open its mouth to a 90-degree angle. The colour of the head is always several shades lighter than the rest of the body; the eye is large, round and orange coloured around a black pupil; the body scales vary from a light tan to almost black but irrespective of the body colour the head is always several shades lighter in colour. The ventral or belly scales are creamy white with a mother of pearl iridescent effect and are blotched with reddish to brown blotches or freckles. The jaws are equipped with large fangs and a plentiful supply of very powerful neurotoxin and haemorrhagic venom. It is rightly classed as one of the largest deadliest snakes in the world. A bite from one must be treated immediately and the patient taken to medical aid without any delay so as to have treatment by the specific Taipan Anti-venene, as without this treatment the chances of survival are very remote, as proved by the high death rate prior to the anti-venene being available. The dorsal scales are keeled and number 23 around the body. The scalation is shown in the chart below.

The King Brown or Brown Mulga Snake is also to be found in the same areas as the Taipan, though not very prevalent in the coastal regions. This is also a large snake with a recorded length of 12 feet and a corresponding large girth. The head is large and broad and not distinct from the neck and is the same colour as the rest of the body which is a coppery to a light brown. The scales are coarse and large and are not keeled. The belly scales are yellowish white without any blotches or freckles. The fangs are short for a large snake and the venom supply is also small in comparison and not near as deadly as the Taipan or Common Brown, although immediate treatment should be given and the patient taken to a doctor without delay.

The Common Brown Snake (*Demansia textiles*) is found practically all all over Australia though not very common on the coast. It has a wide colour range of the different shades of brown. The belly scales are creamy white with red or brown freckles like the taipan. The length has been recorded at seven feet. Unlike the taipan the head is short and the jaws not as long; the fangs are not long and the venom supply not very large although very deadly. Immediate first aid treatment is necessary and medical aid should be sought without delay. Scalation as shown in the chart below.

Species	Ventrals	Sub-Caudels	Anal Scale	Body Scales	Blotches on Belly	Infra Labials	Supra Labials
Taipan	234/255	60/70	Paired	Single	23	Yes	6
Common Brown	190/220	45/75	Paired	Paired	17	Yes	6
Mulga or King Brown	180/220	50/70	Paired	17	No	6	6
		Half Paired					
		Half Single					

**To Summarise:** The Taipan has a single anal scale and all paired sub-caudal scales, with blotches or freckles on the belly.

The Common Brown Snake has paired anal scales and all paired sub-caudal scales, with belly blotches like the Taipan.

The Brown Mulga Snake has paired anal scales and half the sub-caudals are paired and half are single. No blotches on the belly.

### TREATMENT

(1) Immediately apply a ligature to a single bone part of the limb; that is above the elbow or above the knee if bitten on a limb.

(2) Wash bitten area to wash away any venom remaining on the skin—in an emergency use water, spittle or even urine.

(3) Incise wound through fang punctures in a longitudinal direction to permit bleeding—remember a patient can lose a pint of blood without any ill effects. Apply suction if possible as the blood washes out the venom.

(4) Get patient to a doctor immediately and tell the doctor the type of snake involved, if possible, and also how long ligature has been applied.

(5) If there is any delay in getting medical aid the ligature must be released after 20 minutes for 30 seconds and then every 10 minutes after.

—VINCENT M. REILLY

## CLUB ACTIVITIES

**T**HE Bruce Weir on the Walsh River, 69 miles from Cairns, a short turn-off from the road to Dimbulah, a couple of miles short of that town, was the venue of the club's January field day.

The river, just overflowing the dam wall, presented an expanse of water lilies, some in flower, over the leaves of which several Lotus birds (*Irediparraga llinacea*) were seen moving, accompanied by their chicks.

Other birds noted in the open forest surroundings were the Little Grebe (*Podiceps ruficalis*), Coot (*Fulica atra*), Noisy Friar Bird (*Philemon corniculatus*), Koel (*Eudynamys orientalis*), Olive Backed Oriole (*Oriolus sagittatus*) and the Black Backed Magpie (*Gymnorhina tibicen*).

A junior member found a juvenile specimen of Children's Python, six inches long, under a stone, and a couple of specimens of quartz crystal were obtained from a quartz intrusion in sedimentary rock on the river bank.

Several spider specimens were collected and identified by Mrs. M. E. Hall, the Club's Arachnidologist, for whom this field day will be the last for a while, on account of Mr. Hall's transfer to Brisbane, members bidding her a regretful farewell before the party left to return to Cairns.

On the evening of Friday, February 26 a very successful social evening was held in the club room, during which Mr. C. Luppi screened two very good nature films, one showing a lion hunt by Masai natives armed only with spears and shield, two lions being the score, the other showing fauna in the Yellowstone Park, and the geysers of its thermal region.

Mr. N. C. Coleman provided a most interesting and instructive series of slides shown under his two microscopes, one of which, fitted with a polariser, showed clearly the structure of several minerals and semi-precious gem stones.

The evening's entertainment concluded with the screening by Miss B. P. Mole of a series of land and seascape transparencies in colour, of her own photography, including pictures taken during the abovementioned January field day, a really good selection of views.

In the attendance members were outnumbered by junior members, to whom microscopes are a never failing attraction.



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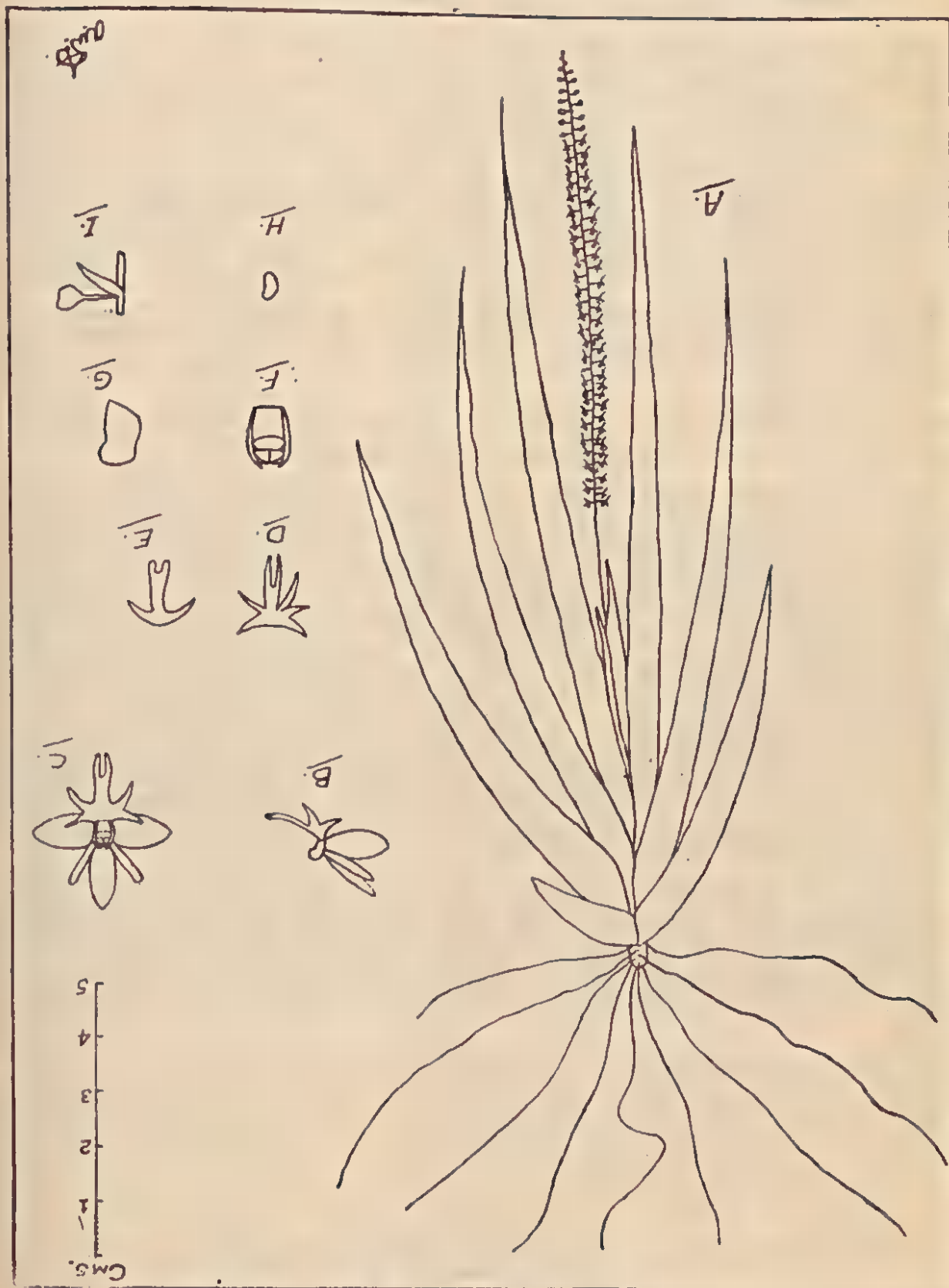
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# A NEW SPECIES OF OBERONIA (Orchidaceae) FROM NORTH QUEENSLAND

By A. W. DOCKRILL, Edge Hill, Cairns, North Queensland.



## Legend for Illustrations :—

- |  |                            |
|--|----------------------------|
| A. Plant Natural Size.                         | B. Flower from Side x 12.  |
| C. Flower from Front x 12.                     |                            |
| D. — E. Occasional Variations in Labella x 12. |                            |
| F. Column from Front x 30.                     | G. Column from Side x 30.  |
| H. Pollinium — Greatly Magnified.              | I. Bract, Pedicel and Bud. |

## A NEW SPECIES OF OBERONIA (Orchidaceae) FROM NORTH QUEENSLAND

### *Oberonia attenuata* Spec. Nov.

*Planta pendula. Radices filiformae, crebrae haud. Folia 4—7, 2—15 x 0.5—0.8 cm. valde viridia, ad cuspidem fere filiformae paulatim contrahens, textura rariora quam quad in duabus aliis speciebus Australianis ut O. titaniae Lindl. vel O. muellerianae Schltr. Inflorescentia folius longissimi longitudine circa similis, multiflosculae; segmenta florea perseverantia etiam in capsulis aridis; bracteolea pugioniformae; pedicelli c. 1 mm longi; capsulae c. 2 mm longae. Flores 1.5 — 1.75 mm trans, pallioi spadices. Sepala similes, reflexa, cymbiforma. Petala sepalum  $\frac{2}{3}$  longa, reflexa, lineara. Labellum c. 1 x 1 mm, trilobatum, columnam non amplexens, lamina oblonga, lobis alte bifidis; lobi laterales c. 0.5 mm longi, partibus bifidis falcatis et late divergentibus; lobus medius c. 0.5 mm longus, bifidis partibus parallelis, linearibus vel oblongis, interdum falcatis. Columna c. 0.5 mm longa, prominens, alae cotingentes apex antherae; stigma reniforma; anthera alba; pollinia alba pellucida reniforma.*

North Queensland, Mossman River 12—6—1960, Leg. A. W. DOCKRILL.  
Holotype: Bot. Mus. Brisbane.

Plants pendulous. Roots filiform, not very numerous. Leaves 4—7, 2—15 x 0.5 — 0.8 cm, dark green, gradually tapering to an almost filiform point, texture thinner than in either of the other 2 Australian species, *O. titania* Lindl. or *O. muelleriana* Schltr. Inflorescences about same length as longest leaves, many flowered; floral segments persistent even on dry capsules; bracts of pedicels about 1 mm long, pugioniform; pedicels about 1 mm long, capsules about 2 mm long. Flowers 1.5 — 1.75 mm diameter, pale red-brown. Sepals all similar, reflexed, cymbiform. Petals about  $\frac{2}{3}$  length of sepals, reflexed, linear. Labellum about 1 x 1 mm, not column embracing, trilobate, lamina oblong, all lobes deeply bifid; lateral lobes (rarely trifid or unifid) about 0.5 mm long, their arms always falcate and widely diverging. Mid lobe about 0.5 mm long, its arms parallel, usually linear or oblong, but occasionally tapering to a point. Column about 0.5 mm long, prominent indistinctly winged in apical half; wings extending as high as apex of anther; stigma reniform; anther white; pollinia translucent white, reniform.

It is difficult to determine the affinities of this species. It does not appear to be closely related to either of the other Australian species and is readily distinguished from them by its pendulous habit of growth, whilst the other 2 are upright, much darker green, longer and narrower leaves and labellum which has its 3 lobes bifid whereas this feature is absent from the other 2 species.

The specific epithet refers to the shape of the leaves.

Plants, with flowers months past maturity, were seen by L. W. Archer, B. M. Borger and the Author in January, 1960.

A. W. DOCKRILL.

## GEOLOGY

In the country traversed between Forsayth and North Heads Station, a distance of forty miles, three main rock types were encountered, namely Granite, Slate and Conglomerate-Sandstone. It was the vast elevated areas of the Conglomerate in which we were mainly interested.

The surface for most of the distance was very stony, being liberally strewn



with rounded quartz pebbles, the remnants of completely eroded conglomerate beds.

The country generally was very hilly and rough with slate beds of inclined strata outcropping frequently. An important feature of the landscape was the great number of wide and extensive quartz reefs which sometimes outcropped in the form of pillars, often up to ten feet in height. In fact the highest one seen was estimated to be about sixty feet high.

**MINING.**— The area visited was roughly on the south western edge of the Etheridge Mineral Field but there is little or no mining activity in the vicinity now. About five or six miles out from Forsayth we passed through an old mining area where all that remained were the dark grey mullock dumps and a few scraps of iron around the site of the blacksmith's forge.

We were told that one mine here was worked by a twelve year old lad under the supervision of his father, apparently with some success. The richness of the reefs was indicated by the heavy specimens of galena which we picked up from the dumps. Silver-lead ores were worked here but traces of copper were noticed also.

We guessed that low prices rather than the exhaustion of the ore bodies caused the closing down of the mines many years ago, but even in their heyday, transport difficulties must have been severe.

Between the Robertson and Gilbert Rivers, we had pointed out to us a creek gully which had been worked for alluvial gold over fifty years ago. Piles of stones which had been removed from the bed and placed along the banks, could be clearly seen.

One of the most exciting discoveries of the whole trip was the finding of an ancient gold miner's cradle, beautifully preserved and well hidden in a dry cave. These "tools of trade" once common on the old alluvial fields are almost museum pieces nowadays. By an examination of tins and bottles and other items found in the miner's rock shelter nearby and by the gleaning of some information from our host at the Station, we concluded that it had been last used at least fifty years ago. We learned also the possible identity of the old fossicker who worked there.

Even the station people had no knowledge of the camp's existence and we were assured that, for the time being, it's location would remain undisclosed. Naturally we intend to visit the spot again.

**THE CONGLOMERATE BLUFFS.**— These cliffs, forming the escarpments of large plateaux, became a dominant feature of the landscape once the Robertson River was reached. Here near the river crossing, they stretched for miles along the western bank.

Hundreds of square miles of this type of country was seen from vantage points on the bluffs themselves and looking north, the long lines of conglomerate escarpment followed the river valleys right to the distant horizon.

Supporting a growth of spinifex and lancewood scrub, these areas are useless for cattle grazing. Rocky wastelands they are the haunts of wild pigs and dingoes.

On penetrating the bluffs we found that, although the upper surface of the conglomerate beds presented a fairly flat surface when viewed from a distance, it was cut and broken into a maze of steep sided gorges, forming the heads of numerous creeks. The internal gorges, converging with others, eventually found their way to the outer edge cutting a fantastic pattern through the beds of rock. A weird no-man's land of cliffs and chasms and huge masses of rock eroded into a great variety of patterns and shapes.

At their outer edges, the bluffs formed vertical and overhanging cliffs from which huge sections had broken away into jumbled heaps below.

Some of the larger creeks, dry gullies for most of the year, cut back into the plateau for miles providing a few points of access for stock. However this inhospitable country was seldom entered by cattle, although brumbies had been seen in the area. These small creeks which formed numerous narrow gorges, were choked with rocks and dense stunted scrub and higher up near their heads, with thick mats of spinifex.



The particular plateau around which we spent so much of our time was roughly circular in shape, about sixteen miles in diameter, and bounded on the west and the east by the Gilbert and Robertson Rivers respectively. Except for a few occasions when hunting brumbies, no station people had penetrated the area to any great extent and we were assured that, as far as they knew, it was quite unexplored. What lay in the interior and whether there were any signs of Aboriginal activity, no-one could say.

The rock itself was stratified with highly contrasting beds of material, ranging from finely textured sandstone to the coarsest conglomerate. Individual beds ranged up to six feet in thickness and false bedding, indicating strong currents or changes of flow during the period of deposition, was a common feature.

Most of the particles were of waterworn quartz but it was not uncommon to find large angular pieces of both quartz and slate, jutting from the faces.

Mineral impregnation had painted the white and grey rock faces with tints of yellow and russet and blue and stained quartz pebbles followed the bedding planes in mottled lines giving touches of beauty to the eroded landscape.

**THE QUARTZ REEFS.**— These reefs, previously mentioned, stood out in bright contrast to the drabber surroundings and many of them could be traced for hundreds of yards across the country. Quite a few more or less isolated outcrops in pillar formation, each surrounded with its scree of angular fragments, dotted the landscape.

Three such outcrops, viewed from a distance of about ten miles, from the top of the conglomerate escarpment near the homestead, had the appearance of station buildings and had us guessing for quite a while.

We examined some of the reefs closely but they appeared to be barren of any material.

**RADIO-ACTIVITY.**— Our host informed us that two areas showing signs of radio-activity had been discovered on the property, firstly from the air and later confirmed by ground survey. Their potential is apparently a close secret.

**SEMI-PRECIOUS STONES.**— Many happy hours were spent in hunting for agates and similar stones, in the bed of the Robertson River near our camp. These stones of non-crystalline structure are deposited from silica bearing solutions in the sandstone and assume a wide variety of colours and forms. The typically banded agate is known to most people but its allied minerals, some of which are quite attractive, are not so well known. In addition to banded agate, which was mostly of a red colour, we found many specimens of cairngorm (the yellow form) blood-stone, onyx, ribbonstone and jasper.

Most of the stones unfortunately display the value robbing feature of internal fracture, especially the larger ones. However many sound specimens in the smaller sizes were collected.

We are not sure whether the fracturing was caused by their rough transportation down the bed of the river or insitu, by movement of the mother rock, but the latter theory is held at present, as being the most likely.

Although we did not trace the agates to their point of origin, we learned that they entered the river from a tributary called Agate Creek and were shed from the sandstone at a place, also appropriately named, called Agate Pocket. This also is a place to be visited when again in the area.

**EARLIER INHABITANTS.**— There was ample evidence in the section of the Gilbert and Robertson River valleys visited, to indicate that the country supported a large aboriginal population. The abundance of natural rock shelters adjacent to the large streams would make it an ideal camping area, as we discovered to our own benefit.

We had a most interesting time searching for aboriginal relics but really only "scratched the surface" in our quest. However here are some observations.

**Cave Dwellings.**— There are Caves and overhangs by the hundred in the conglomerate bluffs, many of which could provide comfortable dry shelter for



a family group as in fact many of them did. Most caves were heavily smoke blackened on the upper surfaces, much more than one would expect as the result of nearby bush fires, indicating the presence of cooking fires in the past. In one large family cave near the Gilbert about five miles in an upstream direction from the Homestead we dug into the loose soil on the floor, uncovering numerous chips of bone and cinders.

In fact, our camp for three days on the Robertson River was in a cave which had been previously occupied by the natives.

**Grinding Stones.**— Many large rocks adjacent to the shelters were deeply grooved by spear head and other grinding operations. One such sandstone rock near the cave previously mentioned, on the Gilbert, contained about forty grooves, each about ten inches in length, three inches in width and with a depth of about three inches. Practically the whole of the available surface had been used.

Here also, in a similar rock, was a basin shaped depression containing two spherical stones which were used apparently for the grinding of vegetable food, remaining undisturbed since they were last used.

Another rock having numerous grooves was found in a creek gully near our camp on the Robertson River but altogether dozens of such markings were found over the whole area.

**Stone Chippings.**— Each camp had its litter of quartz and agate and jasper fragments nearby where implement manufacture had been carried out. We termed these places "spear factories".

Rough chips suggesting shapes of spear heads and cutting tools which apparently did not fracture according to the maker's wish, were discarded while those which were satisfactory were no doubt smoothed and sharpened on the rocks nearby.

Some of the shallower depressions suggested that they had been used for axe-head grinding.

It seems strange that no axe-heads or completed spear heads were discovered although several flakes of quartz and flint with serrated cutting edges, were seen.

**Rock Chisellings.**— One elaborately chiselled rock was of particular interest. This rock, about nine feet by eight feet, carried a design which appeared to depict the story of a hunt, for kangaroo and emu tracks were clearly shown. There were also oval shapes with radiating lines, two of which were joined by a dotted line, suggesting a route followed.

The whole design was copied for interpretation later.

Not far away we found a small design of an emu chipped into the rock face. Other markings were found but they were crude and indistinct.

**Rock Paintings.**— Nothing that could rightly be called a painting was found, except perhaps a crude design made in two colours, red and yellow, on the roof of a cave behind our camp on the Robertson River. It was copied in its true colour with water paints, for later study.

Several lines painted in yellow ochre and two designs in the shape of a Lorraine Cross, were found.

Hand prints, made by blowing liquid ochre over hands placed on the rock, were seen by the hundred. Practically every clear or smooth section of rock in a sheltered position, displayed hand prints, some of them remarkably distinct.

Some were most unusual. One hand, printed at least three times, was that of a giant. At least, it was unusually large, which was in contrast to all the others seen. Others showed deformities, such as missing finger joints and in some cases one such hand would be printed several times. Whether fingers were deliberately held in a bent position to achieve this effect, is uncertain, but if that was the case, then the copies were very accurately made.

We were told at the Station that a hand print showing missing a finger had been seen in several places of up to thirty miles apart.

It was interesting to see tiny prints, those of very small children, fre-



quently displayed. Many of them were in places far beyond a child's reach. Adult hands also were placed at points eight or nine feet above the nearest foothold, so how the men managed to blow ochre from the mouth over hands at these heights, is a matter for conjecture.

Most of the ochre was of a reddish colour but some blue colour was also used.

**OTHER ITEMS.**— Many bones of kangaroos and wallabies were found in caves and many fragments which could not be identified as being animal or human. Two bones which had been sharpened, were found but one was badly splintered.

One "sugar bag" tree was seen into which the natives had cut a hand hold to obtain the honey.

No burial caves were found. It is hoped that a more intensive search may be made in the area at a later date for we feel sure that there are many more Aboriginal relics to be discovered. Our activities were confined to only about three miles of the conglomerate escarpment of one particular plateau having a diameter of sixteen miles.

G. MASLEN

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## THE ANT-PLANTS OF QUEENSLAND

By H. A. LINDSAY, (Adelaide).

The ant-plants of tropical regions provide a most interesting example of insect and vegetation association for mutual benefit. The scientific term for it is "commensalism" and it can be freely translated from the Latin as "eating at the same table".

The plants belong to the Rubiaceae family, which includes trees of economic importance, such as those which produce coffee and quinine, as well as the *Coprosma* which makes such a hardy, fire-proof hedge. Ant-plants are epiphytes; that is, they grow on other species of vegetation without drawing nourishment from them, as do some orchids and ferns.



There are about 140 species and they are found in the Malay Peninsula, Indonesia, New Guinea, the Philippines, Solomon Islands, Fiji and in Queensland as far south as Prosperpine. Most are characterised by a large, bulb-



like body, up to 18 inches in diameter, covered with spines in some species, from which grow shoots carrying leathery leaves and small white flowers.

Ant-plants are found growing on many species of trees, chiefly the mangroves, Kapok and tea-tree. The interior of the big, rounded body has a texture very similar to that of a raw potato. The most striking feature is the fact that in practically every adult specimen, this body is full of tunnels which house a colony of small, pugnacious black or brown ants. Some 18 species of ants use them as homes.

For a long time it was a mystery how the ants excavated these tunnels in the body of the plant and many theories were advanced, but finally it was



discovered that the ants do not make them. The jewel butterfly, *Miletus apollo*, lays its eggs on the outside of mature plants which are not occupied by ant colonies.

The grubs which hatch, bore their way into the body of the plant, eating its tissue. By the time they are ready to pupate, the plant body has become so riddled with tunnels as to resemble a sponge, but this does not harm the plant in any way — it continues to flourish.

After the butterflies have hatched, a newly-mated queen ant enters one of the tunnels and starts a fresh colony. Before long, the ants become numerous enough to occupy all the holes which the grubs have bored. They thus secure a weather-tight home. In return, they perform the service of keeping the outside of the plant free from pest insects.

Mr. John Orell, of Smithfield, North Queensland, who took the accompanying photographs, has made what appears to be a hitherto-unrecorded observation. He noticed that the ants from neighbouring colonies take a great interest in young ant-plants, right from the stage when the body is no larger than a button, as if caring for what will be a future home for a colony of their species. They run around on it continually.

A further study may reveal other interesting facts about this curious ant and plant commensalism.



## BY CAR TO COOKTOWN

BY VINCE REILLY

Being on Annual holidays my wife and I decided to go by car to Cooktown to see the old Town, and also to witness the Commemorative Service of the 190th Anniversary of the Landing of Captain Cook on the bank of the Endeavour River. Leaving Cairns at 10 a.m. we travelled via the Cook Highway to within three miles of Mossman where the road turns to the left and begins to climb the Rex Highway over the main Coast Section of the Great Dividing Range at a place called Height of Victory. Here at Hanna's Lookout at a height of 1453 ft. a magnificent view of the cane fields, the Coast Line, together with Low Isles off Port Douglas, and Schnapper Island at the mouth of the Daintree River, and the surrounding districts for miles around could be seen. The road now winds over the Great Dividing Range through thick Coastal Scrub till it reaches the top of the Range, bird and animal life were very scarce along this section. From the top of the range a further seven miles brings one to a right hand turn off where a quarter of a mile off the road is Mt. Kooyong Guest House, nestled snugly among the trees and ferns on clear running Bushy Creek. A very nice cup of tea, sandwiches, scones and Cakes, etc., can be had here for the weary traveller as well as holiday accommodation and full board if required under the capable management of Mrs. Roe. After leaving Mt. Kooyong another 5½ miles brings you to the Junction of the Cooktown and Mt. Molloy road, turning left for one mile brings you to Mt. Molloy, and turning right is the main highway to Cooktown. The road is gravel in fair condition, except for a few pot holes and numerous dips where it is necessary to slacken speed. The road crosses Stoney Creek, Station Creek near Brooklyn Station and continues on to Mt. Carbine which is reached 18½ miles after leaving the turn off. Mt. Carbine is an old Mining Town, which like most mining towns, has seen much better days, Wolfram being the predominant metal found there, during the two world wars this metal brought very high prices, and several fortunes were made. At time of writing only a handful of gougers remain, hoping for the price to rise once again. The small hill near the town site is like a Rabbit Warren honeycombed with holes where the miners have been digging over the years in the hope of striking it rich once again. Petrol is available here, and a little old country Hotel "The Wolfram" is run by Albert Bethel and his wife who caters for thirsty travellers where good Cold Beer is always on tap. Between Mt. Molloy turn off and Mt. Carbine bird life is not very plentiful, some of the birds seen on this section included Black Backed Magpies (*Gymnorhina Tibicen*), Butcher Birds (*Cracticus Nigrogularis*), Mudlarks or Peewits (*Grallina Cyanoleuca*), hundreds of Rainbow Lorikeets (*Trichoglossus Moluccanus*), several Willy Wagtails (*Rhipidura Leucophrys*), and a pair of Pale Headed Rosella Parrots (*Platycerus Adscitus*). The scrub had now changed to open forest country with all the different vegetation appertaining to the open Forest, these included various members of the Myrtaceac order, Iron Bark, Bloodwood, Silver leafed Iron Bark, an occasional Iron Wood, Gum Trees, Pandanus, some Quinine Trees and many others too numerous to mention. After leaving Mt. Carbine for the next stop at the Palmer River 51 miles away, the road crosses Battle Creek, McLeod River which is not far from Curraghmore Station, the Desailly, over the Desailly Range where Main Roads Dept. workmen are working on the Range section, across the St. George river numerous small creeks and finally reaching the Palmer. All these rivers between Mt. Carbine and the Palmer River flow into the Mitchell River which empties into the Gulf of Carpentaria approximately 15 miles north of the Mitchell River Mission where around 600 Aborigines are looked after.

At the Palmer a nice little Kiosk supplies a meal or a Cup of Tea and Sandwiches, Petrol is also available here if required. Bird life appears to be



more varied and plentiful on this section than on the preceeding one and in addition to those birds mentioned previously, included beautiful large Black Cockatoos with the red tails (*Calyptrorhynchus banksi*). These beautiful birds are nowhere very numerous and in this area, and other areas throughout the Gulf and Peninsula are to be found in pairs or sometimes small flocks of six or eight, when disturbed they make their peculiar call of Kee-ah, Kee-ah and never fly very far away. Their flight is rather slow. Other birds seen were the noisy Friar bird or Leatherhead (*Philemon corniculatus*), the Blue Jay or Black Faced Cuckoo Shrike (*Coracina novae Hollandiae*). Crimson Wing or Red Wing Parrots (*Aprosmictus erythropterus*), Crows (*Corvus Cecillae*), the Apostile Bird (*Struthidea linera*) quite noisy in their large families, also Galahs (*Kakatoe roseicapilla*).

After leaving the Palmer River for the final stretch of 69 miles to Cooktown the road crosses the Laura River, the East and West Normandby, the Annan 20 miles from Cooktown and again 4½ miles from Cooktown. On this stretch of road the Byerstone Range has to be negotiated a road which has been carved out of the solid cliffs, and which presents a grand view of the surrounding districts and the road to Cooktown can be seen winding its way for miles to Cooktown and the Coast. The creeks and rivers on this section from the Palmer (but not including the Palmer) to the East Normandby flows into the Normandby which in turn empties into Princess Charlotte Bay north of Cooktown. The other creeks and rivers between the Normandby and Cooktown flow into the Annan river which empties into the sea South of Cooktown. These rivers abound with very nice fish, Bream, Cod, Barramundi, etc., also salt water Crocodiles where the rivers are tidal. I saw photos of Barramundi 50 lb. in weight which were speared by the Aborigines of Hopevale Mission North of Cooktown. Eighteen miles before coming to Cooktown the road turns south for two miles off the main Highway to Helenvale where the quaint little Old Time Hotel "The Lions Den" is run by Jack and Kath Leary who look after all travellers and visitors very well with their generous hospitality. I was very interested in Jack Leary's Collection of large Serub Python Skins, several stuffed possums, Native Cat, Stripped Possum, Bats, etc., which he has displayed on the walls of the small bar of the "Lions Den". This bar is only about seven feet long but nice cool drinks are always available. Jack also had a live Tawney Frogmouth (*Podargus strigoides*) in a cage with a white Cockatoo which was rather humorous as the Frogmouth was supposed to sleep of a day, and the Cockatoo sleep of a night, so with the screeching of the Cockatoo of a day, the Frogmouth got no rest, and of a night the Frogmouth kept the Cockatoo awake, so he gave me the Frogmouth and the old Cockatoo now has his nights rest in peace.

Between the Helenvale turn off and Cooktown one passes the Black Mountains, two high mountains composed of nothing else, no soil or vegetation but millions of large black and grey Granite Boulders placed one above the other, some weighing hundreds of tons. This is a magnificent scene and one wonders how they came to be there like they are, stark and naked without a tree or blade of grass. Cooktown stands on the Endeavour River where Captain Cook and his party landed 190 years ago, to repair the "Endeavour" which was holed on a reef near Cape Tribulation, and which after a very trying journey finally was beached on the bank of the river which now bears its name, and on which Cooktown now stands. A large monument in his honour now marks the spot.

The section of road from the Palmer River to Cooktown bird life was similar to the last two sections, but additional birds such as Black Ducks (*Anas superciliosa*), Brolgas or Native Companions (*Grus rubicunda*), Shags or Darters (*Ankingh novae hollandiae*) Plain Turkeys or Bustards (*Eupodotis australis*), Wedge Tailed Eagle (*Aquila audax*), Pelicans (*Pelecanus conspicuatus*), Doves (*Geophelia placida*), Jackass (*Dacelo gigas*), Squatta Pigeons (*Geophaps scripta*), Plovers (*Lobibyx miles*), Egrets (*Egretta alba*) and many



other small birds of which I was not familiar were seen. No other animals were seen between Cairns and the Palmer River, but between the Palmer and Cooktown wild Pigs, Kangaroos, Wallabies and a large species of Kangaroo Rat were seen, several Kangaroos had been killed by passing motor vehicles, and I counted eight between the Palmer and Cooktown, large whistling and Wedge Tail Eagles were feasting on the Carrion. Three snakes were seen on the whole trip one Scrub Python and one Childrens Python were captured and a Herbert River Black Snake managed to elude capture. The coastline around Cooktown abound in reefs and rocks and several lighthouses are erected along the Coast at Cooktown on Grassy Hill is one at 530 feet which flashes every six seconds and is visible for 15 miles, further South at Archer Point are three lights, one at 240 feet visible for 20 miles, one at 210 feet visible 15 miles and one at 90 feet visible 15 miles. Several high Mountain Peaks are along the Coast on the Great Dividing Range, some of the highest being 4000 ft., 4025 ft., and 4400 ft. in height. Between Mt. Molloy and Cooktown hundreds of Cattle mostly white faced Herefords in prime condition were to be seen grazing along the road, large cattle properties such as Brooklyn, Curraghmore, Kings Plains, etc., are passed through, some of the Homesteads are quite close to the road. Many Lagoons teeming with wild fowl, Duck, Geese, etc., are also a short distance off the road, but owing to indiscriminate shooting by vandals resulting in the destruction of valuable cattle and horses the Owners of some of these, have rightly refused permission to further shoot on their properties. Wild Pigs and Dingoes are also numerous and are an added menace to the pastoralist. The distance from Cairns to Cooktown is 207 miles, the road is fair though very dusty in parts, large gangs of Main Roads Department men with Bulldozers, Graders, etc., are doing a mighty good job of re-building the road and when completed it will be a good road. There are at present a lot of Detours around Culverts and Bridges not yet completed. When the road is complet a lot of visitors will no doubt visit Cooktown for a week end. Pioneer Tours are now running a Coach to Cooktown, and the first load of passengers under the capable hands of Coach Captain Bruce Hopkins arrived in Cooktown on June 16th to coincide with the Captain Cook Celebrations. There are at present three Hotels in Cooktown, the Commercial West Coast, and Sovereign, several other old Hotels no longer operating are Monuments to better days. A Caravan Park attached to the Sovereign Hotel is also popular with tourists. This journey would be very interesting for a Botanist to notice how the Flora changes from mile to mile, some places there are miles of nothing else but Boxwood then miles of Iron Bark, then Blood Wood, then beautiful Gum Trees in their stately whiteness, paper Bark Trees and others too numerous to mention. Likewise the soil formation changes from mile to mile, White to Black to Brown to Red and all Colours in between. For anyone contemplating the trip. Petrol is available at Mt. Molloy, Mt. Carbine, Palmer River, and Cooktown. At present the trip takes from 7 to 8 hours without knocking your vehicle about but with the completion of the road time will be reduced considerably.

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### FLECKER MEMORIAL MEDALLION

This years winner of the Flecker Memorial Medallion was Miss Margaret Fairlie with her essay on "The Natural History of North Queensland". We must point out however, that this essay was not quite the style required, as the whole point of the competition is for those competing to observe, note and write down things they have actually seen and experienced thus developing the attributes of a true Naturalist, the pursuit of knowledge from nature herself, and the ability to describe what they have seen. We regret that owing to shortness of space, we are unable to print Miss Fairlie's essay, but we do congratulate her on her effort.



## A VISIT TO CAIRNS BY A GERMAN ORNITHOLOGIST

Cairns was recently visited by Dr. K. Immelmann, a German Ornithologist and the Club was able to be of some assistance to him with his work in this area. Dr. Immelmann is from Wiesbaden, Germany, and having finished his course and become a Doctor of Natural Science, was granted a scholarship to Australia for one year to study the biology and behaviour of Finches. He has always been interested in birds, particularly Australian Finches all of which, with the exception of the Plum Headed Finch (*Aidemosyne modesta*) he has already seen in aviaries in Germany. These incidentally have been bred from birds originally brought from Australia about 80 years ago.

Just a few observations were needed in Eastern Australia—of the Black Throated Finch (*Poephila cincta*) and Red Browed Finch (*Aegintha temporalis*) and to examine the nest of a Chestnut Breasted Finch (*Donocola castaneothorax*).

A start was made by observing some Spice Finches in the North Cairns Reserve. These are an introduced species and like some other introductions, appear to be "driving out and taking the place of the native birds, at least in this district. On the Kuranda Highway a pair of Banded Finches (*Steganopleura bichenovii*) were seen by the keen eyes of the Doctor, but unfortunately passing traffic soon frightened them away. Our objective was Tinaroo Creek Road where Black Throated Finches had been seen by members of the Club interested in birds. Luck was in and before long a party of 3, then 8 then a colony of some 30 birds was found here. Another visit to this area several days later with our President Mr. A. A. Read (expert billy boiler) for more detailed study was a bit disappointing as on this occasion only 3 Black Throats were seen. Detailed notes were taken of behaviour and habitat etc., and it was interesting and instructive to watch a trained ornithologist on the job. Every detail was noted and written down.

A visit was made to Mr. Bravery's farm at Atherton where a discussion was had on finches in general.

On Sunday the hunt was on again, this time down the coast towards Innisfail. Passing through the cane fields near Edmonton, a flock of Chestnut Breasted and Banded Finches was seen in the grass at the side of the road. Closer observation showed that both species were feeding young not long from the nest.

At Babinda, Dr. Immelmann was indebted to Mrs. De Brueys for allowing him to inspect her colourful aviary of various finches, where at last he was able to see the Plum Headed Finch. Half an hour was spent in taking notes on this bird.

At Mrs. Gill's home on the Palmerston Highway an old Chestnut Breasted Finches nest and an incomplete one were found. These were photographed and removed for further study. Here also Crimson Finches (*Neochmia phaeton*) were plentiful and a nest of this species was found in a banana tree, photographed and taken also.

On Tuesday a Redbrowed Finches nest with young was found at the Maringa Sugar Experiment Station where Dr. had gone for the day as guest of Mr. G. Bates.

As Crimson Finches have a habit of nesting in pineapple plants, opportunity was taken to visit the pineapple farm of Mrs. J. Orrell at Smithfield. A profitable hour was spent here watching a number of immature Crimson Finches.

All members meeting Dr. Immelmann were surprised to find—not a middle-aged bearded professor—but a young man of great charm, self effacing and extremely keen on his job. He left Cairns with a good impression of the beauty of the coast and the tablelands and is enthusiastic about the immense possibilities for further study of the many species of beautiful and strange birds to be found around here.

M. L. CASSELS.



## AN UNUSUAL ACT OF AMPLEXUS IN *Bufo marinus*

BY DANIEL C. WILHOFT

Amplexus is the term used to describe the sexual clasping of many amphibians preceeding egg laying and fertilization. A typical amphibian (frog or toad, in particular) situation where amplexus occurs might be described as follows. The males arrive first at the breeding locality, which is usually some form of freshwater, viz. a lake, stream, pool or even some very temporary standing water. When the males have themselves situated in the water and conditions appear right for breeding (usually at night during rain or under very wet conditions) they begin a vocal chorus which has the effect of luring in a sexually mature female to the male. The actual act of amplexus, which consists of the male placing himself on the back of the female and grasping her very securely in the region just behind her fore limbs with his fore limbs, normally occurs soon after the female arrives and may last for considerable periods (an entire night). To assist the male in grasping the female the "thumbs" of both fore feet become greatly enlarged (and often darker in colour) which facilitates greater gripping ability. It has been shown that male frogs and toads usually grasp objects which meet three requirements: (1) proper size, that is a girth of such dimensions that the male's fore limbs can be placed around it properly; (2) there is a certain amount of resistance or firmness to the body of the grasped animal; (3) that the grasped animal utters no sound, very often males are grasped by other males, but when the characteristic alarm note of the male is given they are promptly released. The stimulation of the male's presence causes the female to lay her eggs and when they enter the water they are fertilized by the male secreting a sperm containing fluid directly into the water also. This is thusly a completely external type of fertilization.

On December 27, 1959 on a dirt road 3 miles East of Bingil Bay an adult male toad (195 gm. 135 mm. Snout-vent) was observed during amplexus with an adult female (? gm. 145 mm. snout-vent) in the middle of the road. At least three factors appeared quite unique about this situation.

First the female was dead and had been for some time. It appeared as if she had fallen victim to a car as is the fate of so many along the highways. The limbs were already stiff, abdomen greatly distended, and the smell of putrefaction about her.

Secondly of course, it appears strange that the male should be so intent as to fail to observe the female's condition, but more surprising was the position assumed by the male; that of stomach to stomach contact rather than stomach (his) to back (hers). This latter condition is probably not too difficult to explain if we assume, as we almost have to, that the female was killed or fatally wounded and ended up on her back, the position she maintained. It also seems reasonable to assume the tactile stimulation received from this dead female in a reversed position was sufficient to cause the male to attempt and continue normal amplexus.

Thirdly the time and place we encountered this pair was unusual. It was at 1400 hours on a sunny afternoon, but even more interesting was the location—the middle of the road. The proper fertilization and development of the eggs depends on their being in water so that this particular locale was completely unsuitable. In fact the nearest freshwater was at a considerable distance. One possible explanation for the male's performance was that he was on his way to the freshwater and came across the female dead in the road. The sexual drive appears strong enough in these toads to explain his accepting her, but his continuance through a possible eight hours of daylight seems rather strange. At the time of observation there appeared to be no lessening of the male's drive as was shown by picking up the female by one leg and having the male hang on with great tenacity emitting the alarm note continuously, normally indicating a state of strong amplexus.



# SOME OBSERVATIONS ON A SPECIES OF HYDROPHILUS (Water Beetle).

BY N. C. COLEMAN.

In late October 1959 I found a cocoon of eggs of an *Hydrophilus* Beetle in Collinson Creek at Edmonton, and took it home intending to discover what I could of its life history. I opened the cocoon and found it to contain about eighty white eggs, roughly oblong in shape, with one end pointed and facing upwards. Half of the eggs were placed on moist blotting paper over water in a large glass container. Dissection of some of the eggs showed that the embryo was enclosed just prior to hatching by two membranes so thin that three or four days before hatching many details of the developing larva could easily be seen under the low power of the microscope. All but a few were hatched eight days after I had found the cocoon. All left the eggs by the blunt end, which in the cocoon is nearest the surface of the water. There were no signs of parasitism in the eggs that failed to hatch. On leaving the eggs the larvae quickly made their way into the water. Those that I observed at this stage seemed to swallow a good deal of air and water and swelled to more than twice their size at birth within an hour. The larvae proved to be carnivorous, as I had suspected by the shape and size of the mandibles, (which were well developed in the egg just prior to hatching). They ate crushed insects, crushed snails, and later, any living insects that they could hold with their mandibles, small tadpoles and small fish. They would also eat raw mincemeat. After the first moult they showed pronounced cannibalistic tendencies but this tendency seemed lacking after the second moult.

The method of feeding was peculiar. The larva would seize the food with its mandibles, then bend its body backwards and heist its meal upon its back, which was relatively broad and which served as a table. The food was crushed and worked by the mandibles but very little solid matter was swallowed, most of its food in the larval stage was taken in liquid form. Respiration was through a pair of caudal spiracles, each with five flaps which were held together in the submerged insect but spread out like the petals of a flower when the insect was breathing. The larvae appeared unable to swim, but crawled about on the bottom and sides of the jar in which I had placed a quantity of dead leaves and twigs. They made frequent use of the twigs to reach the surface of the water when rising to breathe. There were four instars in the larval stage which was completed in early January 1960. The first instar was less than twelve days, the other three varied from sixteen to nineteen days. The larvae become inactive a few days prior to moulting and remained so for three or four days after shedding their skins. They darkened rapidly in colour following the first moult until they became a greyish black colour, with the head smooth broad and black, and the mandibles dark brown at the tips. A small group of six simple eyes were on either side of the head, more readily visible just after moulting. The mature larvae were about fifty three millimeters long by 12-14 wide. There were three pairs of thoracic legs, three jointed, and ending in a single short slightly curved claw. Two flexible spines, about six millimeters long, extend backwards from the caudal segment of the abdomen. These were not connected with the respiration of the insects but resembled the cerci of orthoptiran insects. The larvae left the water to pupate, wandering around over the surface of moist soil, (provided for this purpose) before entering to form pupel cells. The soil, being in a glass container, allowed some observations on the method of cell formation, for some of the larvae constructed their cells against the sides of the glass. The larva pressed the soil away by flexing the body and

exuded a fluid from the body which help to bind and solidify the cell walls. Prepupal stage three to five days. Pupa exarate, (that is with wings and limbs folded loosely on the sides and ventral surface of the body) and not enclosed by a tightly fitting sheath. Pupae at first were whitish in colour, darkening considerably towards the time of emergence of the adult beetle. On the dorsum of either side of the prothorax were three strong brown spines curved forward and away from the body, another pair of similar spines was on the dorsum of the caudal segment of the abdomen pointing backwards and outwards from the body. These three groups of spines formed a tripod, which supported the pupa clear of the underlying soil — the pupa resting back downwards. The pupa was little more than half the length of the larva about thirty millimeters long and fourteen broad.

During the pupal state eight abdominal and two thoracic spiracles were easily visible with a hand lens, the thoracic and first abdominal being much larger than the others. All seemed open and functional.

Each abdominal segment had two strong setae of uneven size on either side of the body. A few days before emergence of the adult insect the eyes become a deep black, the tips of the mandibles, the claws of the feet, the head, thorax and legs became a dark brown colour. Emergence was by a split on the dorsum of the thorax and forepart of the abdomen. The mature insect remained underground for three or four days before attempting to leave the cell and then, by contracting and expanding their abdominal segments and using their elytra and claws, they forced their way to the surface of the soil. About twenty of these mature beetles were placed in an old concrete tub with sand, gravel and stones at the bottom in about a foot of water with growing aquatic vegetation and a quantity of dead leaves, twigs, etc., where they were under intermittant observation for about seven weeks. They appeared to be part vegetarian and part scavenger at this stage. They made no attempt to attack insects or tadpoles that I placed in with them. Examination by lens showed that the enlarged thoracic and first abdominal spiracles persisted in the adult and close observation showed that these were mainly concerned with respiration when the beetles rose to the surface. On rising to the surface the front end of the body was slightly elevated, the elytra raised slightly, at the same time the antennae which, when the beetle is underwater are kept pressed against the sides of the thorax and the fore part of the abdomen are moved outwards from the body, The surface film is thus quickly broken and a clear passage to the air is opened to the three large spiracles.

Mature beetles were about thirty six millimeters long and seventeen broad, glossy brownish black, (slightly darker on the dorsum), rear edge of middle and hind legs has dense line of strong backwardly pointing bristles giving a feather like appearance. Front legs of male has a small triangular plate on the forward surface of the last tarsus which ends in two strong forward pointing hooks and there is a single strong spine at the junction of the first tarsus and the upper leg.

These beetles were kept in captivity until June 1960 but as there appeared no signs of cocoons and nearly half of the beetles had died, I released the remainder.

I could find no clue to the species in Australian Literature, but the shape of the mast on the cocoon, the plate on the forelegs of the male, the method of cell making and the hooks on the body of the pupa show a close resemblance to *Hydrophilus piceus* of Western Europe.



## BIRD NOTES FROM THE TABLELANDS.

Many water birds are now to be found on Tinaroo Dam, namely Black Duck, Black Swan, Grey Teal, Whistling Duck, Maned Goose and White Quilled Pygmy Goose. A great find by Hon Ranger Bruce Reichardt was a pair of Crested Ducks. Only once before have these birds been seen in this area and this was four years ago at Nyleta Swamp. Mr. Roff is making various enquiries to ascertain details about this visitor to the swamp and Dam.

For record purposes, I keep a three monthly record of ducks on the Atherton Tableland for the Chief Fauna Protector, Mr. Roff, of the Department of Agriculture and Stock, Brisbane, in an effort to correctly establish their movements during the year, and I am ably assisted by other Hon. Protectors in this area and also one or two bird lovers. About June or July some species leave South Australia and Victoria and are thought by some to migrate to West Australia and others to Northern Territory. I am endeavouring to locate the following S.A. and Vic. birds in North Queensland—Mountain Duck, Canvas Backed Duck and Cape Barren Goose.

All these birds are protected once they come into the sanctuary at Tinaroo Dam regardless of whether the open sason is on or not. Despite this, vandals are still sneaking into the Dam Area, particularly at the Yungaburra end, and shooting anything on sight. Notices are prominently displayed prohibiting shooting at anytime, but these are ignored.

Scientists are now discovering that birds in general carry various germs of diseases that attack Flora, such as "Lerp" which attacks Iron Bark trees, and also germs that attack crops. They have also found out that some are Radio Active, especially birds from long distances coming from where experiments with Radar are being carried out. This is in an experimental stage and very valuable data will be the result.

C. W. ELLIOT.

### Mr. E. S. FIELDER

We regret to announce the death of our Secretary, Mr. E. S. Fielder just prior to the Journal going to press. An obituary will appear in the next issue.

## EDITORIAL

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Reviewing our activities over the year 1959-60, we find quite a few highlights to report to our Country Members. Field days have been held each month with quite good attendances. Bell's Beach, Malanda Jungle, Palm Beach, Julatten and Black Mountain Road, Kuranda are some of the places visited. Much of interest has been observed and noted at these places. At Black Mountain Road, the Juniors happily fell upon a hapless 10 foot Amethystine Python sunning itself on a log and captured him, presenting him to Mr. Berkely Cook, one of our Herpetologists. Another member found an excellent specimen of a Barking Spider and took her home for further study.

At the request of the West Australian Field Naturalists Club, botanical specimens were flown to Perth for the Wild Flower Show and specimens were also sent to Broken Hill. Faeces of toads and bandicoots were sent to Brisbane University where they were required for research purposes.

Membership continues to grow, with quite a good quota of Juniors, whose evident interest betokens a keen future adult membership.

Defence Standard Laboratories of Ascot Vale, Victoria, requested specimens of Stone Fish—dead or alive—for research into an antidote for their poison. We were able to supply quite a number for them.

We were fortunate to have had on loan for Public Display a comprehensive series of Natural History photographs from the Australian Museum, produced by Kodak Ltd and these were arranged in our Club rooms for inspection by the Public.

A good microscope was purchased, available for any member to use. We have to thank Mr. Noel Monkman, the eminent marine biologist, for preparing a series of slides which he presented to us. Also our thanks go to the Rev. B. B. Lowrey of Sydney for his generous gift of orchid specimens for the Herbarium.

The Publications Committee will always be happy to receive articles from country members to help keep our Journal representative of the whole club. Mr. A. A. Read, our President, is also always happy to hear from out of town members and together with the rest of the N.Q.N.C., render any assistance within his power.

At this point we close our Editorial by wishing all members, Town or Country — A Very Happy Christmas and Prosperous New Year.



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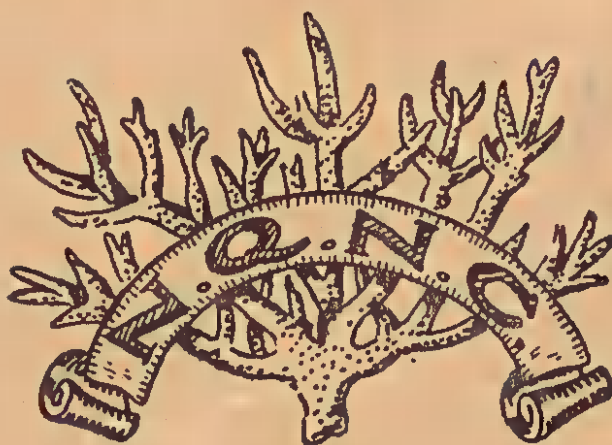
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# THE NORTH QUEENSLAND NATURALIST



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"Each author is responsible for the opinions and facts expressed in  
his or her article".

## NORTH QUEENSLAND NATURALISTS' CLUB

Founder Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**GENERAL MEETING** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** excursion usually fourth Sunday.

**VISITORS** are welcome, especially members of Australian and Overseas Clubs and Societies.

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City and Suburban Members, £1/5/-.

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# MALAXIS XANTHOCHILA (Schltr.) Ames et Schweinf. (Orchidaceae).

The following description and illustration of this orchid, which is little known in Australia, was prepared from material from the Atherton Tableland.

*Malaxis Xanthochila* (Schltr.) Ames et Schweinf, Ames' Orchidacea 5 : 67 (1915 Syn :— *Microstylis Xanthochila* Schltr, Schrum and Laut. Nachtr. Fl. Deutsch Schutzgeb, 102 (1905).

*Microstylis Sordida* J.J. Sm., Bull. Dep. Agr. Ind. Neeri. N. 19 : 30 (1908).

Plant terrestrial stems 8—12 x 1.0—1.8 cm, each succeeding growth usually commencing from about half way along preceeding stem; bracts usually 2, 1.5—4.0 x 1.0—1.5 cm, obcuneate, acute, sheathing, drying before inflorescence matures. Roots up to 20 x 0.15—0.25 cm, glabrous. Leaves 3-10, 8-25 x 2-5 cm, petiolate; lamina ovate or elliptical, somewhat falcate, acute or acuminate, spread more or less in a horizontal plane. Inflorescence terminal, 15-30 x 0.3-0.4 cm, fluted; bracts around the base usually 8-10, 20-50 x 1.5-4.0 mm, obcuneate, acute; cauline bracts about 20, 5-15 x 1.0-1.5 mm, obcuneate, acute. Pedicels plus ovaries 5-7 x about 1 mm; bracts similar to cauline ones but shorter. Flowers numerous, about 5 mm diam., pale green, "reversed", widely expanding. The following measurements are those of an average flower, if variations were given they would be in fractions of a mm. and somewhat pointless. Dorsal sepal 5 x 1 mm, lanceolate, obtuse. Lateral sepals 3.25 x 2.0 mm, oblong or obovate, obtuse or mucronate. Petals 5.0 x 0.5 mm, linear, truncate. Labellum dominating the flower, 7 x 5 mm, horse-shoe shaped, attached at centre of inside to centre of column so that lateral extremities extend well behind column; apex fringed with about 6-8 teeth about 1 mm long; basal section a small broad slipper-like pouch about 2.0 x 1.75 mm. Column 2.0 x 1.5 mm; wings extending just higher than anther, ovate truncate. Stigma very difficult to discern, transverse narrow-oblong, prominent directly below clinandrium. Rostellum in 2 parts, very short, little more than rounded protuberances. Anther 0.5 x 1.0 mm, shallow, truncate, ridged towards base. Pollinia 4 in 2 pairs, translucent yellow, waxy; stipes extremely fili-form and elastic; viscidium, if such it be, minute.

Flowering usually occurs after the summer monsoons.

This species is very sparingly distributed on the tablelands and in coastal gorges of Far Northern Queensland, extending to New Guinea and possibly Indonesia. It grows on the floor of rain forests or on moss and debris covered rocks therein.

It is readily distinguished from the only other Australian species of the genus, *M. Latifolia* Sm. by its horizontal subfalcate leaves, which are more or less upright and not at all falcate in the latter species, and 6-8 on the apex of the horse-shoe shaped labellum, there being only a small central lobe and 2 upturned lateral lobes on the lobellum of the latter.

A. W. DOCKRILL.

## LEGEND FOR ILLUSTRATION :— (On Page 4)

- (a) Plant natural size to indicated scale. (b) Flower from front ..... x 10.
- (c) Flower from side ..... x 10. (d) Lateral Sepal ..... x 10.
- (e) Column from front ..... x 20. (f) Anther from above ..... x 20
- (g) Pair of Pollinia (stipe stretched) ..... greatly magnified.
- (h) Front view of bottom of Clinandrium showing the 2 parts of Rostellum ..... x 20.





## FAREWELL TO A FRIEND

ERIC SOUTH FIELDER.

When the Great Pilot, in His wisdom, gave pratique for Eric Fielder to enter the Safe Harbour for which all our courses are set, his wide circle of friends in Cairns felt a deep sense of personal loss. For ten years Eric had been with us in the North, enjoying a well earned retirement after a lifetime devoted to the service of his country, and during that time, in his unobtrusive way, he had endeared himself to all with whom he had come in contact.

An essentially humble man, his humility could be termed of that sterling quality which is one of the essentials of greatness, and without ever appearing to do so, he left a mark, — and an essentially beneficial mark, on the Club's activities which will never be eradicated.

Few people knew of his remarkable record of service with the Fleet Auxiliary, of his world-wide travels, or of his exceptional knowledge of world affairs, and it was not until his untimely death that these became known.

Born in Sydney in 1891, he became an engineer and at the beginning of the First World War joined the British Merchant Navy, seeing active service in the Atlantic and Pacific theatres. His ship, the "Clan Davidson" was sunk in the Indian Ocean in June 1917; but in August of that year he was signing articles for service with the "Marathon" in London as 3rd Engineer, and remained with the Merchant Navy until 1921, when he transferred to the Royal Fleet Auxiliary. This service took him to the China stations where his progress was steady, — on St. Patrick's Day, 1930 he received the coveted "red ticket",—the certificate of a Chief Marine Engineer. In 1939, at the outbreak of hostilities, he was Chief of the "Olcades" and from Trincomalee was assigned to station duties with the East Indies squadron, continuing in the service until 1951, when he officially 'swallowed the anchor', and retired from a seafaring life.

In Cairns he found what every tropical-service seaman seeks, a climate to which they are accustomed, a proximity to the sea they love, and an informality of living which is inseparable from the seaman's way of life. Shortly after retiring to Cairns Eric became interested in the North Queensland Naturalists' Club, and formed a sincere friendship with the Club's founder, the late Dr. Flecker. He applied himself to the Club's interests with the same assiduity which had characterised his progress through the Service, giving liberally of his time and talents to the furtherance of the Club's interests. On Dr. Flecker's death he was appointed Librarian and Curator of the Flecker Herbarium, and set up an office in the building. Two years ago he took over the Club Secretaryship, and under his administration the organisation prospered mightily.

Meticulously careful in attention to detail,—a habit formed by over three decades of responsibility at sea, he conducted all the Club's correspondence and catalogued the extensive library, and at the same time trained a junior member in the intricacies of the work.

He was at all Club field-days, placing his car at the disposal of the Junior members, and one feels that perhaps it is the youngsters who will miss him most. Whether the trip was a local one to Machan's Beach, or an overnight stay at Chillagoe or Mt. Mulligan, parents felt that their children were in safe hands if they were in "Mr. Fielder's car". It was an irony of fate that his end should have come by way of a car accident.

Many people outside his immediate circle knew him and loved him. The boilermen at the Base Hospital appreciated his brief visits, — he often dropped in to cast a professional eye over the big Babcocks there, and never failed to compliment the men on the way they were maintained. The waitress at his favourite cafe, who knew him only from his casual visits for his con-

stitutional cup of tea, was always sure of a courteous 'Thank You' as she completed her service.

He had that unobtrusive charm of manner which is remembered long after the giver has passed on. Slow to anger, he would express himself in the mildest of terms on the rare occasions when expletives appeared to be called for. I remember well, after he had accompanied me on an inspection of a very decrepit steam-plant, remarking, (after noting the unlagged pipes, the leaky joints, the inefficient feedwater system, the general air of uncared-for-ness which characterised the plant): "Dear me! what would the Captain say?"

Quick to appreciate and express his appreciation, slow to anger, and then loth to express anger, he gave freely of his remarkable talent and ability to the Club which had become his life's work.

The Club has lost a mighty worker and a superbly capable secretary, many of us have lost a sincere and loyal friend, casual acquaintances have lost someone to whom they looked with respect, but I think that in the final analysis, the passing of Eric Fielder took something even more,—a thorough gentleman of the old school.



Further to Mr. Elliotts article mentioning the Crested Grebe (Crested Duck) in Vol. 29 No. 126, here are further notes from a Tableland Member.

### NOTES ON THE GREAT CRESTED GREBE

The Great Crested Grebe, (*Podiceps cristatus*) is the largest of the genus found in Australia. Frequenting mainly lakes and large swamps it prefers localities which have reedy foreshores. In 1958 I observed a few of this interesting species on Tinaroo Dam after the first ponding of water and each Spring and Summer Crested Grebes have been noticed there. Several were noticed frequenting sheltered bays in company of the Little Grebe (*Podiceps ruficollis*) in late Spring and early Summer in 1960. Occassional birds were also observed in local swamps where they keep well-out from the shoreline. Many Crested Grebes were seen in April 1959 by John Warham and myself in the lakes and swamps of the Herbert and Burdekin Rivers, South of Mt. Garnet. In breeding plumage they have a ruff or collar and ear tufts (ears), the ruff disappearing in the non breeding (eclipse) period, but the ears are retained all the year. Crested Grebes if disturbed when feeding close to the shore will dive and swim under water and do not surface until they are well out in the deep water. Food is obtained on the bottom, the birds diving and staying under approximately 20 seconds before surfacing. Similar in size to the Black Duck (*Anas superciliosa*), the Crested Grebe has a range covering the Eastern Hemisphere to Australia and New Zealand. Also it is known as Tippet Grebe. Usually it is observed in pairs or single birds.

**Plumage.** Upper parts brown, under white, crown black, ruff chestnut in summer. In winter face and neck pale to white and a crest or ears. The toes are lobed.

**Display.** Crested Grebes have a remarkable display and for those who are interested a full description is given by H. E. Tarr, Victoria, in the 1959 (Dec.) Australian Bird Watcher.

**Nest.** A floating platform of aquatic plants and reeds anchored to some submerged objects such as reeds or floating trees.

**Eggs.** 4 to 11 greenish to white, often soiled by the decaying vegetation of the nest.

**Breeding Season.** November to February.

**Reference.** Observations of the Great Crested Grebe. H. E. Tarr, Victoria. Australian Bird Watcher, Dec., 1959.

J. H. BRAVERY, Atherton.



## THE WHIPSTICK

North of Huntly, and extending to the fringes of Eaglehawk, is an area of dwarf mallee and other native shrubs, etc, popularly known as the Bendigo Whipstick. The name "Whipstick" probably came from early miners, who cut the slender mallee sticks to urge on their horses. This undulating country consists of Ordovician shales, sandstones, and schists, with very little sub-soil, and is probably the vestiges of a much larger area of mallee country of bygone days. Approximately 10 miles from E to W, and 6 miles from N to S, the Whipstick was shunned by the early miners owing to the thickness of the scrub, making progress very difficult. However, when the Bendigo field started to decline, miners forced their way into the Whipstick, where some fairly large nuggets were found. Reef mining gradually extended to the Whipstick with good results in some places. The reefs of the Whipstick do not follow the typical "Saddle" formation of the Bendigo field, but many were worked to considerable depth.

Today nature is gradually covering up the scars of the miners, and restoring an area which holds many interesting features for the naturalist.

Owing to the poor class of the soil, the Whipstick has never been taken over for farming pursuits to any great extent; neither is the small type of timber of much use. However a thriving industry of Eucalyptus Oil manufacture is carried on over a large area. The leaves of the 4 species of mallee, native to the area, are sought for this purpose, particularly those of the Blue Mallee (*Eucalyptus fruticetorum*).

The flowering mallees are also sought after by apiarists who transfer their bees to the Whipstick corresponding to the flowering periods of the different species. The Black Mallee (*Euc. froggartii*) and the summer flowering Ironbark (*Euc. sideroxylon*) are the favourites with the Apiarasts.

### FLORA :—

Apart from the Eucalyptus mentioned above, the Whipstick has a typical flora of it's own, differing greatly from the flora to the South of Bendigo. In spite of the poor soil and dry climate the abundance and variety of plants is amazing. Nowhere else would you be able to find up to a dozen species of native plants covering one square yard.

One of the features of the Whipstick is the flowering in early September of the Hakea Wattle (*Acacia hakeaoides*). To look over acres of rounded golden yellow shrubs is a glorious sight. In May and June another Wattle (*Acacia flexifolia*) brightens up the beginning of Winter. This species is only found in the central Whipstick.

Vestiges of a northern mallee flora can be found near the northern fringe. Plants such as Murray Pine (*Calitris glauca*), Berrigan (*Eremophila longifolia*); Weeping Pittosporum (*Pittosporum phillyraeoides*) and Sweet Quandong (*Fusanus acuminata*) come as a surprise and are comparatively rare in the area.

Four species of Melaleuca add their blooms from September to early January, and of these the Crimson Melaleuca is the most attractive.

Two species of Westringia can be found and one of these Westringia crassifolia, the Whipstick can claim entirely as it's own; being found nowhere else in the world.

The dainty little small leaved Wax-flower is quite common over a large area as also is the Micromyrtus (very closely related to the Thryptomene of the Grampians).

Contrasts in colour are added by the red flowering shrubs of Grevillea, and the Scarlet Mint-bush, and the beautiful blue of the Dampiera, named after William Dampier, the explorer. The Golden pennants (*Loudonia behrii*) also adds it's mantle of yellow in the late Spring.

Quite a number of Orchids can be found and of these the Ruddy Hood (*Pterostylis rufa*) and the yellow sun-orchid (*Thelymitra antennifera*) are typical Whipstick species.

### FAUNA :—

Like the Flora, the Whipstick also has a distinctive fauna. Many species

of Birds, Insects and Mammals, are not at all, or seldom found outside the Whipstick area.

Typical birds of the Whipstick include the Shy Heath Wren (*Hylacola cauta*) which although fairly plentiful is not often seen, owing to its habit of frequenting the lower branches of the thick scrub. The Red-tailed Thornbill also has this habit. Several species of Honeyeaters, confined almost entirely to the area are the Tawny-crowned, Purple-gaped and Yellow plumed. The mournful whistle of the Tawny-crowned Honeyeater is a sound that belongs to the Whipstick.

Although the Mallee Fowl has not been seen in the Whipstick for more than 20 years, the nesting mounds still to be seen and show that considerable numbers of this species used the Whipstick as their home. The introduction of the fox and robbing of the mounds by the early settlers has brought this truly unique bird to near extinction in Victoria.

The Spotted Night Jar is another very interesting bird of this area. Laying only one egg at a time on the bare ground with no semblance of a nest, the bird when brooding the egg is so well camouflaged that it cannot be detected, unless it is flushed. The chick is also well camouflaged, and resembles a reddish brown piece of rock, keeping quite still under all circumstances during the day, with the parent birds looking like two pieces of old mallee root, squatting near by.

One of the best ways to study the wild life of the Whipstick is to select one of the none too frequent dams on a warm afternoon and just keep quiet and watch. Finches, Parrots, Wrens, etc, will soon be seen seeking a drink. Several black Scrub Wallabys will almost certainly come for a drink, and towards evening the large Grey Kangaroos in mobs of six or more will probably be seen, especially if the dam you select is near the fringe of the open grass land.

The Bronze Wing Pidgeon will be almost a sure visitor as also will one of the many lizards, that abound in the Whipstick. If you are lucky you may see some of the small marsupials such as the Long-tailed Mouse, the Brush-tailed Phascogale or more likely a Ring-tailed or Silver grey Possum.

#### CONCLUSION :—

In this short article it is not possible to mention more than a few of the 330 indigenous plants of the area, and many interesting plants have of necessity been left out.

To the Naturalist the Whipstick has much to offer at all times of the year, but in the spring it is a place of beauty and joy to all.

J. KELLAM, Bendigo.

11/2/61

—O—O—O—

#### POT POURRI

Usually a birds nest is used purely for breeding purposes but the Spice Finch, an introduced bird, uses its nest for sleeping. An Observer at Innisfail counted 17 Finches leaving the nest one morning.

A Junior Member saw a Black Butcher Bird in the orange tree. On closer observation it was found that the bird had pushed a mouse into the fork of the tree and was vigorously pulling out the fur. Unfortunately the bird was disturbed and flew away with the mouse in its beak.

It has been reported that Bottle Trees their usual habitat the Central West have been found growing on Mount Desalleys and Mount Elephant about 15 — 20 miles from Mount Carbine.

Members are invited to send unusual observations for inclusion on this page to N.Q.N.C., Publications Committee, Box 991, Cairns.

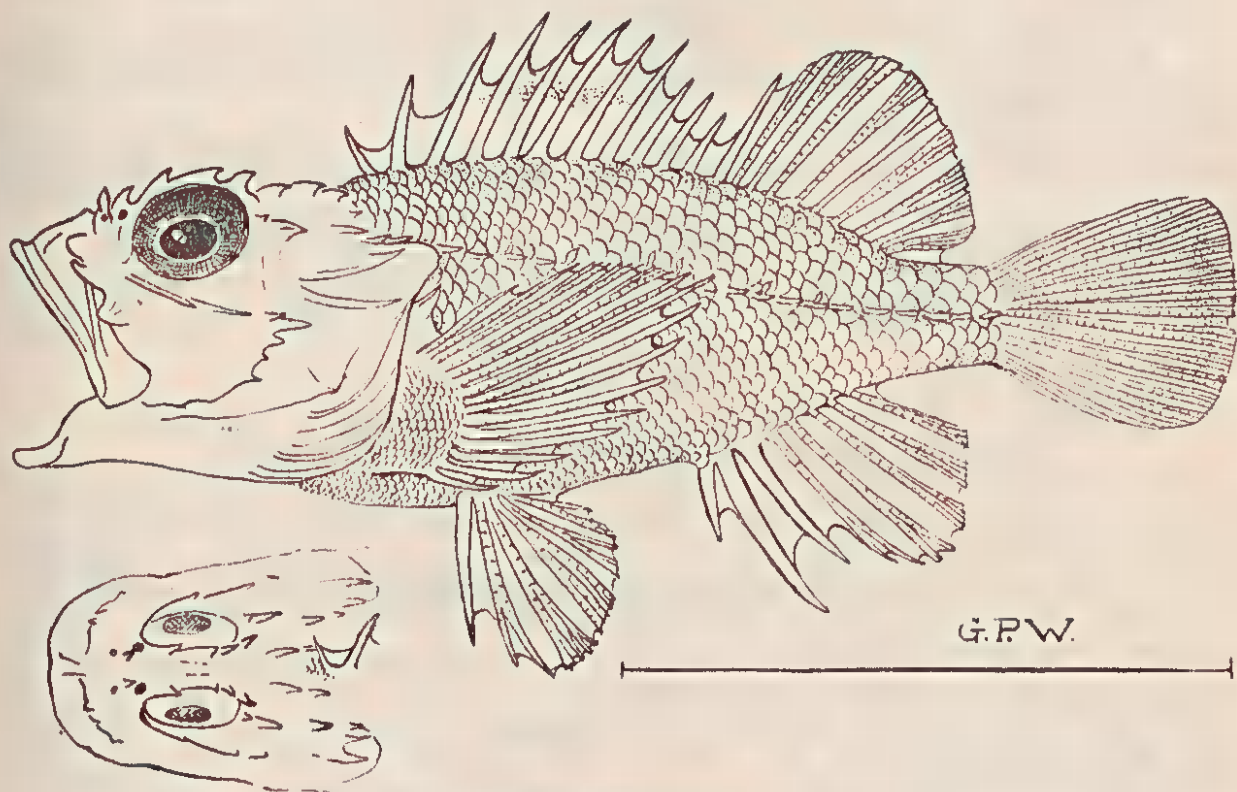
Will any Members who have changed their address please notify the Secretary so that records may be kept up to date.



## A NEW SCORPION FISH FROM QUEENSLAND

BY G. P. WHITLEY.

(Contribution from the Australian Museum, Sydney).



Family SCORPAENIDAE.

Genus SCORPAENA, Linne, 1758.

SCORPAENA MOULTONI, sp. nov.

(fig 1.)

Br. 7. D. xii, 9; A. iii, 5; P. 15; V. i, 5; C. 15 et lat. brev. L. lat. 22.  
Tr. 7/1/11. Pred. 2 G/R.5/6.

Head (18mm.) 2.3, depth (14) 2.9 in standard length (41). Snout slightly less than eye (5) which is 3.6 in head. Interorbital, 3mm. Length of pectoral fin, 11mm. Head naked. Maxillary reaching below front of eye, not ridged. Head and body with very few dermal flaps. No supraorbital tentacles. Interorbital concave. Villiform teeth in bands on jaws, vomer and palatines. Upper profile behind eye not deeply notched. One nasal spine each side. Also preocular, supraocular, and postocular. No spine on coronal ridges. A post-frontal spine on each side, sphenotic spines not developed. Parietal and nuchal well developed. Pterotic, 2 posttemporals and humeral spines. Post-orbitals not evident. Two long, suborbital spines form a low ridge. Two pre-orbitals, the hind lower preorbital spine points downward and forward, not retrorse. Four preopercular spines, and two rather long opercular ones.

Body covered with imbricate, adherent, cycloid scales. L. lat. complete, tubes simple, anterior ones spined. Breast scaly.

Dorsal fin originating over opercular flap. Fourth to seventh dorsal spines longest (6.5mm.), slightly shorter than longest dorsal rays. No flap on inner base of pectoral. Seventh pectoral ray longest. Only a few upper pectoral rays branched. No free pectoral rays. Ventrals rounded, reaching anal spine. Caudal truncate.

Said to have been rosy red when alive. In preservative dull greenish-yellow with faint, irregular infuscation here and there, but no definite markings or pattern. Pectoral axil light, plain. Dark smudge on spinous dorsal

and down posterior margin of caudal.

Total length 1 7/8 inches.

Loc. North of Wilson Island, Capricorn Group, Queensland; in red coral head dredged up from about 50 feet. October 19, 1960. Collected and presented by Professor James M. Moulton. Described from the unique holotype, No. IB. 5062, in the Australian Museum, Sydney.

Named after Professor James M. Moulton of Bowdoin College, Brunswick, Maine, U.S.A., who came to Queensland in 1960-61 to study underwater noises made by animals.

This Scorpion fish is not known to make any particular noise and is distinguished from its congeners by its pale coloration, naked head, short maxillary, large scales, lack of dermal flaps, few predorsal scales, etc. It is apparently nearest the Philippines species, *S. mcadamsi* Fowler (1938, Proc. U.S. Nat. Mus. 88, p. 60. fig. 24) but that has 5 predorsal scales; opercle and postocular region scaly above.

## BOOK REVIEW

**Field Guide to The Waders — H. T. Condon and A. R. McGill.**

**Guide to The Hawks of Australia — H. T. Condon.**

Occasionally a reviewer receives for attention material with which it is an utmost pleasure to deal. Such are the above two works published by The Bird Observers Club, Melbourne. The subject matter is the test of any publication and on opening these booklets it immediately becomes apparent that the authors are most capable and really know their subject. There is a brief classification of the families, hints for identification, glossary of terms, illustrations of the birds in the positions most likely to be encountered in the field (from the side in flight, or standing in the former and in flight from below in the latter) and very useful if somewhat brief notes on each species which is given both its common and scientific names. The authors and publishers deserve every praise for their efforts.

Here in Cairns where waders and hawks are in such profusion, these Guides are an invaluable aid to identification and cannot be too highly recommended to anyone whether mildly or more seriously interested in avifauna. Our copies were received on an exchange basis and are available to members at the Club's library but are also available and most surely will be greatly sought after from the Hon. Sec., The Bird Observers Club, Mr. R. Wheeler, 59a Upton Rd., Windsor, S.1. Victoria for 2/6 each plus 5d. postage.

## GOLDEN BOWER — BIRD

**Also called Newton's Bower-Bird (*Prionodura newtoniana*.)**

This species of Bower - Bird is usually found in pairs frequenting the big scrubs. The bird is very shy but if one sits in the scrub quietly, his long wait will be rewarded. These Bower - Birds are usually found in altitudes not lower than 3,000 ft. above sea-level. In the Baldy Mountains Area, Forestry Reserve 4 miles from Atherton, North Queensland, I have observed many Bowers or play grounds and many pairs of these beautiful birds. They are found in this area no lower than 3,500 ft. above sea-level.

I have observed them feeding, mainly on native fruits and berries (Figs, etc.)

The male Bird has a golden breast, nape, half-crown, and throat. The wings, back, tail and other half of crown are a golden brown; legs and bill are black.

The female bird has a greyish brown breast, throat and under-tail, brown back, wings, tail and head, with black legs and beak.

Their bower is usually built between two trees about (3) three feet apart. Twigs are stacked horizontally around the trees leaving eight (8) inches between walls through which it dances. One side of the bower being from five (5) feet high and the lower side being 18 inches to 2 feet. It is decorated with green and white moss, arodia flowers, fern and clusters of berries. This bird is a splendid mimic. At times in the scrub up the mountain, I hear



what one would think is the whole of the bush life gathered together and singing in one spot. On closer observation I find it is one bird, the Male Golden Bower - Bird.

#### NEST.

The nest is open cup shaped structure built of dead leaves and skeletons of leaves, lawyer cane fibres, strips of bark, twigs lined with rootlets. The nest I had observed was about 3 feet 6 inches from the ground in a deep flange of a tree, (*Ceratopetalum succirubrum*) or Satin Sycamore, in a stunted scrub palm. The position of the nest was very well sheltered and would not be noticed by any amateur bird watcher.

#### EGGS.

The clutch of eggs in the nest were pure to a glossy white in colour and numbered two. The month I located the nest in, was November. According to Neville W. Cayley, F.R.Z.S. their breeding season is between October and December. This bird nested within the season.

J. BACKHOUSE



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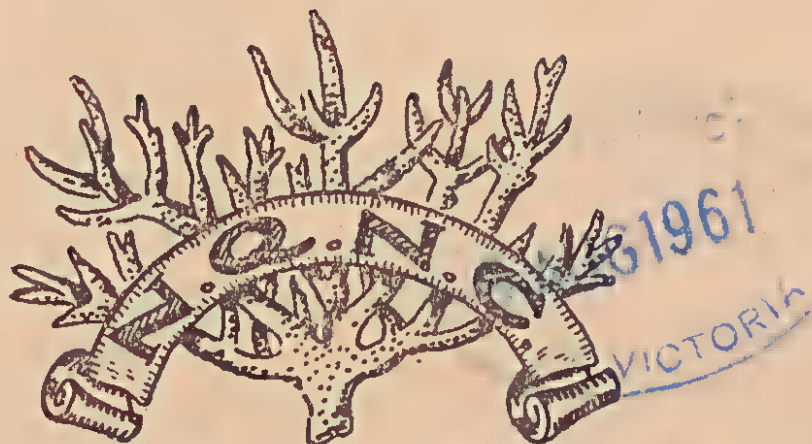
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# THE NORTH QUEENSLAND NATURALIST



CAIRNS

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"Each author is responsible for the opinions and facts expressed in  
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**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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## Second Mainland Nesting of the Grey Swiftlet.

A Mr. Ron Moore reported to a member of our Club that whilst wandering around the hills near Edmonton he had come across the nest of a small bird in an abandoned gold mine tunnel on Mt. Peter. Consequently on March 5th a small party from the Club, namely Mr. and Mrs. Corbet and Tom, Miss Taylor, Mr. G. Atkinson and Mr. and Mrs. J. Cassels under the able leadership of Mr. Moore made a trip to Mt. Peter to investigate this matter. Mt. Peter is about 4 miles from Edmonton and the tunnel was about 1000 ft up the hill. The first part of the climb was quite easy but the last few hundred yards were very strenuous, being along a very rocky creek bed littered with fallen trees and stinging trees. The last few yards, from the creek bed to the tunnel were fraught with some danger, as it was high and steep and underfoot were boulders and loose chips obviously thrown from the mine and threatening to send us to the bottom. Soon we were in front of the tunnel, an opening in solid rock. As we entered, our lights disturbed hundreds of bats which dashed and fluttered past us hitting our faces and legs. Soon we were in pitch darkness with water squelching underfoot and dripping down the walls (and our necks). About 100 yards from the entrance we found the nest complete with parent and child. As surmised, it was a Grey Swiftlet (*Collocalia francica*). The parent bird flew away when the lights were directed on to the nest but the young one remained. The nest was a small half saucer of twigs and feathers fixed to the wall with a shiny glutinous substance. The young bird was fully feathered and nearly full grown. Beneath the nest there was a large pile of soft excreta. It is surprising but this was the only nest in the tunnel though I understand they normally nest in colonies. Nowever, in view of the fact that hundreds of Grey Swiftlets can be seen flying over and around the hill, it is quite likely that further exploration of this area, with its old mine shafts and tunnels dotted around, would unearth more of these nests. From Mr. Roy Wheeler's article on "Mainland Nesting of the Grey Swiftlet" in *The Bird Watcher*, Vol. 1 No. 1 March 1959, I gather that this is only the second mainland nesting site found. Flash Photos were taken by Mrs. Corbet but I regret to say that they did not come out.

Three weeks later on March 29th, a Field Day for all members was held at the same place. This time about 16 members were escorted up to the cave, Mr. Bob Hill. As expected, the baby had flown but all were pleased to see the nest which was again photographed, this time successfully. However, though quite a good photo, the very nature of it made it impossible to reprint on any but the best surfaced paper.

Ref. "Mainland Nesting of the Grey Swiftlet". Mr. Roy Wheeler in *The Bird Watcher*. Vol. 1, No. 1, March 1959.

M. L. CASSELS.

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## PLATYCERIUM GRANDE.

The Staghorn — *Platycerium grande* — is a magnificent ornament in its botanical element, attached to and camouflaging the otherwise barren trunk of a tree.

Differing from the Elkhorn — *Platycerium bifurcatum* — which has at least three varieties or types in its leaf formation, the Staghorn with its fan spread and usually lighter and fresher colouration in appearance, maintains its one aspect and further, the Elkhorn seems to germinate more easily thus spreading to further areas.

Of the sub family Polypodioidae, it is classified as a fern, though the

layman would possibly doubt such from the appearance of its foliage, but when one associates the Staghorn with the fern — *Drynaria quercifolia* — that inhabits the same growing conditions and forms behind its foliage the peat so desired by orchidologists, it becomes more apparent especially when one learns that both are of the same sub family.

In the authors experience as Steward of the Horticulture for some years at the Cairns Show, exhibits of the Staghorn have been very few and not comparable with the specimens seen in Brisbane gardens and at the Oasis, a garden and swimming resort on the outskirts of Brisbane. The display of Staghorns makes a delightful attractive display for visitors and especially horticulturists. These specimens I believe originated in the Tambourine range of mountains.

Perhaps the best known habitat in the Cairns district of the Staghorn is the Davies Creek area, but deforestation is progressively destroying them.

Most catalogues advise watering only behind the leaves, though how rain is able to avoid wetting the front is not explained, but one thing does seem advisable, and that is to allow the dead leaves to fall as cutting them seems to bleed the growth. The vernacular nomenclature implies a likeness to the Stags Antlers.

S.DEAN.

---

### POT POURRI.

An unusual fish was caught by a Cairns Fishing Vessel which on examination proved to be a pure albino Coral Trout. Fortunately someone with an eye to the unusual saw the fish as it was unloaded and now, instead of ending up as fish and chips, the Albino Trout occupies a proud position in the home of our President.

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A peculiar Magpies nest was brought in from Mount Mulligan. Instead of the usual sticks and vines, etc., it was made entirely of wire lightly lined with feathers. Draughty but durable.

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Has anyone seen a Black Bandicoot? It has been reported from Innisfail and from Tully Falls that they have been sighted in these areas.

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### HERCULES IN THE SPIDER WORLD.

While collecting insects at dusk one evening I saw a fair sized specimen of the butterfly *Papilio ulysses joesa* (Blue Mountain) resting on an ixora flower. I pressed a butterfly net over it but beyond a weak fluttering of the wings, the insect did not move. On examining it more closely I found that it was being held by the head by a stoutly built yellowish white flower spider. Holding the butterfly by the thorax with a finger and thumb I pulled on its body to test the spiders strength. For so small a creature, this spiders strength was surprising. The spider measured 14mm x 12mm approx with relatively stout legs. The butterfly was about 32mm long with a wing span of 120mm. I suspect the venom of this species of spider acts rapidly on its insect prey for I have noticed it captures hive bees and large flower wasps with little difficulty and the victims are soon quieted.

N. C. COLEMAN.



## BOTANY AND DYES.

For many hundreds of years, before the discovery and wide spread use of synthetic coal-tar dyes, the human race used colouring matter of botanical origin in the dyeing of textile fabrics.

The early Britons obtained a blue dye from the WOAD plant (*Isatis tinctoria*) and, according to Roman writers of the period — 2000 years ago, used this to dye clothing material and also to colour their bodies. The dye was present in the leaves of the plant and a fermentation process finally rendered it available in the form of Indigo.

### Indigo.

The use of Indigo as a dye has been known for several thousands of years. The cloth wrappings from Egyptian mummies 5000 years old were tested and found to be Indigo dyed.

India was the chief source of supply during the period when the plant from which it was obtained (*Indigofera sumatrana*) was grown on a large scale to supply a large foreign market. At the peak period in India 250,000 acres were under cultivation. A fermentation process was used to obtain the dye from the leaves of the plant. It was also grown to some extent in Java, China, Japan, West Indies and Central America.

The natural dye became an article of commerce in Europe during the 12th Century.

In 1865 work was commenced on the problem of the synthesis of Indigo and in 1879, Baeyer, a German Scientist, succeeded in making it in the laboratory. In 1897 a German firm of dye makers put it on the market as Indigo

### Puer.

Eighteen years (1879-97) were spent in making the production on the works scaleable to compete in price with the natural dye. From then on the synthetic dye gained ground and now in the industrialised countries the natural dye is obsolete.

## Other Dyes of Botanical Origin.

### Fustic (old).

Extracted from the wood of *Morus tinctoria* from Central America, Cuba and Jamaica. It gave yellow shades in wool.

### Persian Berries.

Extracted from the dried berries of *Rhamnus tinctoria* or *infectoria*. This came from Asia Minor and gave yellow to orange shades in cotton printing.

### Logwood.

Extracted from the wood of *Haemotoxylon campechianum* from Central America, Jamaica and Domingo. It gave black dyeings on wool cotton and silk.

### Archil.

From various species of lichens of the *Roccella* and *Lacanora* families. It gave bluish-red shades on wool and silk.

### Cutch.

The dried sap of various *Acacia* and *Mimosa* species growing in the East Indies. This gave fast brown shades on cotton.

The above five colouring matters were dyed in conjunction with certain metallic salts, usually salts of iron, aluminium, tin and chromium.

In a survey carried out in India in 1883 on the natural dyes in use at the time, a list was given of

- 16 plants of trees giving red shades.
- 15 plants or trees giving yellow shades.
- 2 plants giving blue shades.
- 20 plants giving brown, black or green shades.

Various parts of the plant or trees were used, such as bark, leaves, wood, seeds fruits, flowers or roots.

The two following dyes are not of botanical origin.

#### **Tyrian Purple.**

This famous dye of ancient times was obtained from certain molluscs. The chief species being *Murex brandaris* and *Murex trunculuc*. Its use was reserved for Royalty and high officials of the Church. It is believed to have been used on the island of Crete as early as 1500 B.C.

In the arly part of the 20th century, research work showed this dye to be closely related, chemically, to Indigo — a plant dye originally.

#### **Cochineal.**

A dye used largely in earlier times and was obtained from the dried bodies of the female cochineal insect — *Coccus cacti*. It gave scarlet shades on wool and silk, using salt of tin and aluminium.

F. T. WADE.



### **AN APOLOGY.**

In the North Queensland Naturalist. 29. No. 126, 4 (Dec. 1960) the present author described *OBERONIA ATTENUATA* DOCK, as a new species and stated that this plant was first noted by L. W. Archer, B. M. Borger and the author in January 1960. It has now been found that this is an error, Mr. Jack Wilkie of Babinda having collected the plant at Babinda in May 1956 and the author offers sincerest apologies to Mr. Wilkie for being responsible for this error being published. He would also like to offer Mr. Wilkie the heartiest congratulations on his finding yet a further new species.

During a period of illness in May 1956, whilst resident in N.S.W. I received from Mr. Wilkie a package of orchids, included in which was a specimen of what the sender referred to as *O. titania* Lindl. It was quite apparent that this plant was not *O. mulleriana* Schltr. and since at that time only 2 species of *Oberonia* were known to occur in Australia, it was simply assumed, not caring to use a high powered magnifying glass (which is necessary when studying the minute flowers of this genus) whilst feeling so indisposed, that it was Lindleys species. Recently, whilst studying some specimens of the genus, I had occasion to refer to some herbarium specimens and the attenuated leaves of Mr. Wilkie's specimen stimulated my curiosity and some flowers were softened out and were found to be quite indisputably the new species *O. attenuata* Dock.

A. W. DOCKRILL.



## Colony Formation and some notes on the habits of the Green Tree Ant, (*Ecophylla smaragdina*).

In late January 1961, I captured seven green ant queens resting on leaves on cultivated and native trees and placed them in numbered jars for life history and colony formation studies. Four had shed their wings at the time of capture and the other three shed their wings a few days later. The wingless ants had laid eggs before being collected and the others laid within one week later. The number of eggs in these seven cases varied from 19 to 27.

The queens were left on the leaves on which they had been resting and the stems of the leaves were pushed into damp sand in the jars to keep the leaves firm and fresh and to maintain a humid atmosphere. Eggs hatched in from 5 — 8 days.

The queens were very aggressive, moving quickly to attack any object or finger approaching the eggs or larvae. The queens were observed to feed the larvae by regurgitating fluid, the larvae being held by the head by the mothers mandibles. To test the maternal instinct of the queens I removed two of them from their eggs and substituted one for the other. They settled down without any fuss and brooded over the eggs as though they were their own. Later I made a similar exchange with queens with young larvae and after touching the larvae with their antennae for a few minutes they settled down to feeding the larvae. In all cases when the first hatched larvae were four or five days old, the queens used them to spin a rough shelter over themselves and their progeny. The larvae was grasped by the middle and moved from one side of the leaf to the other. The resultant shelter was flimsy and irregular but strong enough to put a noticeable tension on the sides of the leaf.

Crushed insects, live scale insects and aphids were placed in the jars to note if the queens would feed while brooding and rearing the young ants. Being absent at work by day, I placed the food in the jars on my return home. In no case did I notice the queen feeding herself before the emergence of mature workers. The queens fed the first newly emerged workers by regurgitating fluid as in the case of the larvae, but later I observed reciprocal feeding between workers and queens, the workers feeding on the crushed insects, etc., and then regurgitating to feed the queens.

Though the queens did not feed before the birth of the first workers, they drank readily from cottonwool soaked in water and the workers were drinking frequently a few days after emerging.

When the pupa were formed no signs of a cocoon could be detected under the low power of the microscope. The small amount of larval silk used by the queens in constructing their shelter could scarcely have exhausted the larval silk supply in the young ant which in the pupal stage were entirely naked. The instinct of cocoon formation may have lapsed owing to the long usage of the larval silk for nest building by the adult workers. The fact that the queens readily made use of the larvae in the construction of a shelter points to the possibility of the peculiar nest forming habits of the green ants being first initiated by the mothers and then acquired by the workers by association or inheritance of instinct.

I have observed more than two hundred new colonies over the past four

years — most of which were formed in the rainy season. My observations show that less than 30% of these had a duration of more than six months.

I have opened many other young colonies and colonies in various stages of development and of these more than 20% were without queens. Some unknown factor is causing a high mortality in the queens of this ant in the area examined by me. This mortality seems to be greater in the young colonies than in the older nests.

The larval silk is put to uses other than nest building by these industrious and pugnacious insects. In common with many others of their family, they construct shelters over colonies of aphids and scale insects which provide them with an excretion which they consume very readily. To shelter their livestock the ants will draw two or more leaves together and fasten them with the larval silk. Larger leaves holding aphid or scale colonies may be bent on themselves, which, considering the springiness of some leaves is no small effort for these ants. Small colonies of woolly aphids and scales sheltering in clefts in the fruits of custard apple are also covered with silk. The larvae used in the construction of these shelters are transported during night-time and early and late in the day or during very overcast days, probably to avoid injury to the larvae by exposure to direct sunlight.

N. C. COLEMAN.



## A Survey of the Avifauna of the Atherton Shire.

Considerable collecting for museum and private collections by early birdmen, including such well known figures as Kendall Broadbent, who collected the type specimen of the Golden Bower Bird (*Prionodura newtonia*) at the head of the Tully River in 1882, and many years later in 1908 Sharp brothers working for Southern Museums, and Syd Jackson employed by H. L. White of Belltrees, Scone, N.S.W., staged a close and bitter race to secure the type eggs and nests of *Prionodura* and the remarkable Toothbill Bower Bird (*Scenopoeetes dentirostris*). To the dismay of Jackson the race went to Sharp brothers. In the intervening years previous to the second world war, little was heard from ornithologists in this rich region. While engaged on military service on the Tablelands during the years 1943 to 1945, P. A. Bourke and the late H. F. Austin jointly compiled a list of species observed covering an area of 12000 sq. miles from Mount Molloy in the North to Mount Garnet in the South and including the regions of Bartle Frere and Bellenden Kerr in the East. A total of approximately 200 species were recorded, this being a very valuable contribution to ornithology and this list with brief comments on each species was published in the *Emu* Vol. 47.

In 1955 I commenced to record a list of species found within the boundaries of the Atherton Shire, an area of approximately 352 sq. miles. This area, very small in comparison to the area covered by Bourke and Austin, has surprisingly a similar range of habitats. Where Bourke and Austin could not return to many promising and interesting areas, I have been able to visit each habitat many times and at different seasons. This has been the means of locating many rare and interesting species, especially the nomadic and migrating types. Each habitat has contributed its quota. Tinaroo Dam and adjoining areas have considerably added to the species count mainly by water-



frequenting birds, including several of the overseas migratory waders. These extremely interesting species are mainly spring and summer visitors and a suitable habitat has been established by the releasing of ponded water for Irrigation and other projects. At the end of the year 1960 a total of 253 species has been recorded for the Atherton Shire, and no doubt considerable additions will be made in the future years. Ten (10) species listed by Bourke and Austin have yet to be located and no doubt more new species will eventually visit the dam areas. Two species which previously were resident in certain Open Forest habitats, the Emu (*Dromanus novae-hollandiae*) and the Great Bower Bird (*Chlamydera nuchalis*) have now moved to more inland areas and are not included in the Atherton Shire list. In 1959 John Warham, a visiting English naturalist, accompanied by his wife, spent six months in Atherton localities and were very successful in locating nests for detailed study, several rare species being under observation at one time. It was with regret they left Atherton to continue the journey around the continent of Australia, hoping to return some time in the future. From time to time visiting Ornithologists have been amazed by the variety and abundance of our native birds and all stress the need for full protection and the preservation of habitats so that in the future citizens may enjoy the pleasure of roaming the bushlands and seeing and hearing the native birds in their natural surroundings.

Ref. "The Diaries of Syd Jackson." A. H. Chisholm. "The Avifauna of the Atherton Tableland" P. A. Bourke and A. F. Austin.

J. BRAVERY.

—O—O—O—

## EDITORIAL.

Junior members in Cairns are reminded that those wishing to enter for the Flecker Memorial Medallion must soon get their essays written as Show time is nearly with us. Remember — personal observations only — no notes from Naturalist books are required. Your spelling, punctuation and writing are not taken into account, purely and simply the subject matter. We hope that more members of the Club will enter for this competition this year.

Painting of the Herbarium and painting and rearranging of the Library is now nearing completion. When it is all straight again, a list of books will be published and sent to members on request. On application to the Librarian, any of these books may be borrowed and we hope that Country members particularly will take advantage of this added amenity.

We are still sending Stone Fish down to Ascot Vale as and when they are brought in to us. Five more are still wanted by the Laboratories.

We regret to announce the death of one of our Club members, Mr. F. R. Morris, on April 10th. Our sympathy goes out to his relatives in their sad loss.

We have been able to have a Field Day each month this year. Venues have been Machans Beach, Hartleys Creek, Browns Bay, Mt. Peter, and Tinaroo Creek Road. The Mt. Peter trip was a very successful one. Whilst in the tunnel viewing the Swiftlets nest two of the junior members captured three small bats and they were taken down to the main party for identi-

fication. We think two were Eastern Horseshoe Bats and one the Eastern Broad Nose Bat. After examination they were released. Other finds of interest during this outing (which was attended by about 40 members and friends) were a green tree snake and a lovely specimen of a scorpion. The mineralogists were all very interested in some large blocks of white marble that had been cut from the surrounding hills.

Bad weather marred the Browns Bay trip and stopped many from attending.

At Machans Beach, Hartleys Creek and Tinaroo Creek Road many interesting birds were seen and botanical specimens collected. Insects were also on the collectors lists and many species of ants were collected from Tinaroo Creek Road by a visiting naturalist, Mr. Weatherall.

**PLEASE**, more material is urgently needed from members for our Journal. Full length articles or Pot Pourri items will be welcomed.



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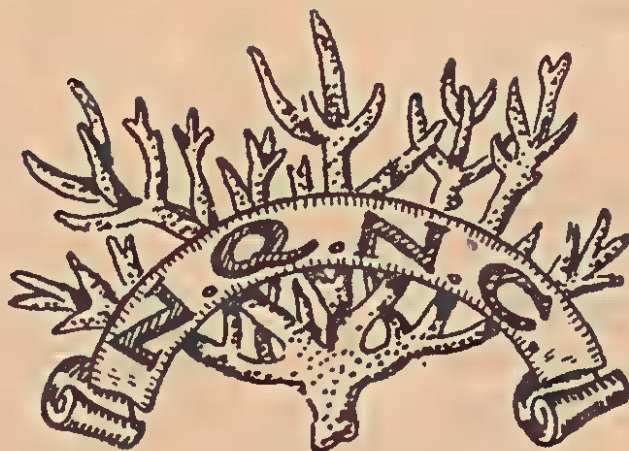
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# THE NORTH QUEENSLAND NATURALIST



CAIRNS

Journal of  
NORTH QUEENSLAND NATURALIST CLUB

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"Each author is responsible for the opinions and facts expressed in  
his or her article".

## NORTH QUEENSLAND NATURALISTS' CLUB

Founder Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**FIELD DAY** excursion usually fourth Sunday.

**VISITORS** are welcome, especially members of Australian and Overseas Clubs and Societies.

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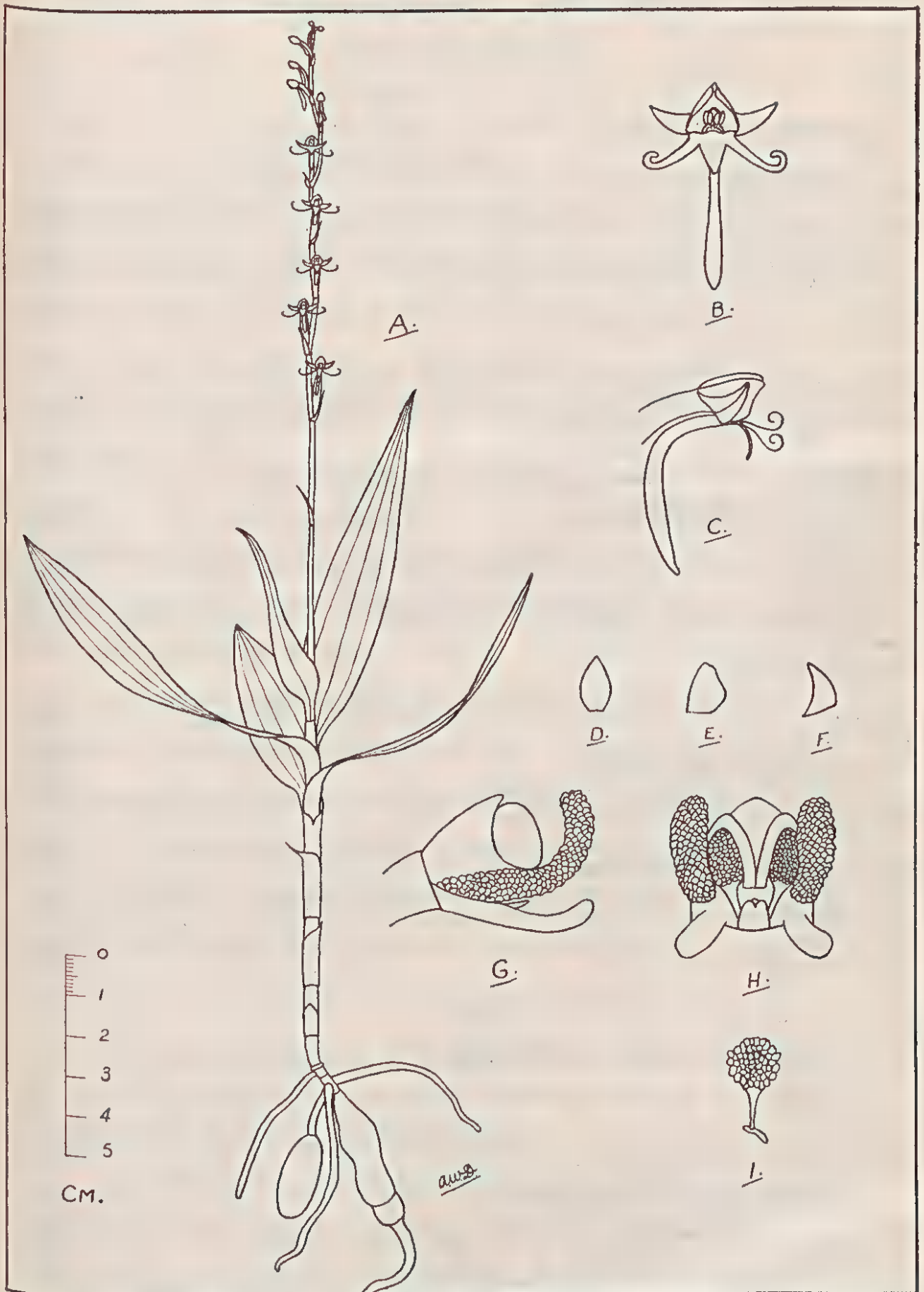
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HABENARIA PAPUANA KRZL.



- A PLANT ..... NATURAL SIZE  
 B FLOWER FROM THE FRONT ..... X 5  
 C FLOWER FROM THE SIDE ..... X 5  
 D DORSAL SEPAL ..... X 5  
 E PETAL ..... X 5  
 F LATERAL SEPAL ..... X 5  
 G COLUMN FROM THE SIDE ..... X 40  
 H COLUMN FROM THE FRONT ..... X 40  
 I POLLINIUM ..... X 40

# A NEW HABENARIA (Orchidaceae) FOR NORTH QUEENSLAND

BY A. W. DOCKERILL

*Habenaria papuana* Krzl. in Warbg. in Engl. Bot. Jahrb. 18 : 188 (1894)  
 ...Syn :— *Peristylus remotifolius* J.J.Sm., Nova Guinea 8 : 134 et t 45 (1911).

Plant terrestrial, 15 - 35 cm. tall. Tubers 2 - 4 x about 1 cm, usually subobloid but inclined to be irregular and usually with a root projecting from the apex; immature tubers very regularly ovoid or obloid and having no apical root. Roots not numerous, about 1.5 mm diam. Stem 5 - 12 x 0.2 - 0.5 cm with usually 3 sheathing bracts and at the apex, a rosette of leaves (occasionally leaves scattered along stem). Leaves 4 - 7, 6 - 17 x 1 - 3 cm, lanceolate. Inflorescence apical, 8 - 20 cm long; bracts 1 - 2, not sheathing, about 10 x 1.5 mm. Flowers 6 - 36, lime green, about 1 cm diam. Dorsal sepal about 3.0 x 1.5 mm, ovate, cucullate, forming, with the petals, a galea. Lateral sepals about 3.0 x 1.5 mm, falco-deltoid, divergent. Petals about 3 x 2 mm, usually shallowly but broadly emarginate (but sometimes obtuse), dilated about the middle on one side only. Labellum about 2 x 7 mm, trilobate; lateral lobes about 3 mm long, filiform, hooked, widely divergent; mid-lobe about 1 x 1 mm deltoid, decurved; spur about 8 mm long, rather slender, somewhat dilated near the apex, decurved near the base. Column about 1 x 1 mm. Stigmatic arms about 0.75 mm long, cylindrical, adnate to the labellum. Rostellum at the base of the column, about 0.25 x 0.25 mm, subdeltoid, prominent. Stamens large, about 1 mm long, cylindrical, upcurved, reigose. Anther cells rather widely separated at their apices but converging at their bases. Pollinia subglobose, granular; caudicles about as long as pollinia, stout; viscidia rather large slender-ovate.

This species was first observed by the present author, growing in dense rain forest near the Mossman River in June 1960 and again in May 1961. Schlechter Orch. von Deutsch - New Guinea t 2, Nr. 6 (1928 gave 8 locality records for it in New Guinea.

The author is indebted to Dr. Blake of the Brisbane Botanic Gardens for assistance in identifying this species.

The only other species of the genus in Australia with leaves in the middle of the plant is *H. mesophylla* Krzl., but its flowers are much larger than those of the present species and its lateral lobes of the labellum are triangular and mid-lobe of labellum about 2 cm long and filiform whereas those of the present species are in the first instance, filiform and in the second, about 1 mm long and triangular.



## COLLECTING ANTS IN THE CAIRNS AREA.

It is doubtful whether anywhere else in the World there is an area of comparable size in which there are so many species of ants as in the country round Cairns. After 2 months I still find every day what are to me new species : I have no doubt I could go on doing so for a long while.

The most prominent genus of ants is *Iridomyrmex*. These ants run about quickly and erratically on paths and the edges of roads. There are at least a dozen different species of them close round Cairns. The "Meat Ant" (*I. detectus*) which is common on the Atherton Tablelands but not found in Cairns is one of them. Another is the brown-black "Stink Ant" (*I. nitidus*) though it is a lumbering creature beside its twinkle-footed relatives.

A great many ants are to be found on trees. There are a number of varieties of *Polyrachis* (spined ants) most of which are fairly large and many of which have beautiful sheens on their backs. *Crematogasters* are other common tree ants. They are smallish and usually dark in colour. The last—



or gaster—section of these ants is rather triangular in shape and is frequently turned up, especially if they are disturbed. Most of the *Iridomyrmex* are great tree-climbers and there are several species of a minute ant, *Techomyrmex*, which can be seen speeding along the bark of trees and logs. They look like tiny spiders and the common one is greyish in colour.

In grass or on paths the little *Lampromyrmex*, a very thin shiny ant, is common, especially a beautiful black species.

The ant which is most numerous over the whole area is undoubtedly the little reddish *Pheidole* which comes a good deal into houses. It gets everywhere and is vicious enough when in great numbers to drive out all the other ants; so in Kuranda village, for instance, or on most of Green Island or parts of the Tableland it is the only ant. The few larger workers are usually darker in colour and have big round heads, which give the species the name of *P. megacephala*. To one who is interested in ants this one is a thorough nuisance.

The best-known and probably most prominent ant is (however the "Green Tree Ant" (*Oecophylla smaragdina*) which I have found also in Eastern India, though there and I believe in some parts of Queensland it is far less green than round Cairns.

Outside the town packs of a long, thin, black ant of a species of *Lobopelta* may be seen dragging back prey to their home. Twenty or thirty of the ants may combine to drag a big beetle or other insect up a steep slope; It will be drawn over or under outstanding obstacles with considerable abroitness and with astonishing speed. There are two species of *Opisthopsis*, brilliantly-coloured ants which move quickly in fits and starts. They are very difficult to catch, as their reactions are extraordinarily quick and their large eyes are not just for show purposes.

The big "Spider Ant" (*Leptomyrmex erythracephala*) is not found in Cairns, but is just outside. It is black with a red head and has rather a pleasant musty odour: It is also intensely inquisitive and even if gently removed, will soon trot back and continue its investigations. Bull Ants are not present in Cairns, but the red jumping one is very common round Mareeba. It is, however, a shy retiring ant and will certainly get out of the way if it can.

I am often asked how I catch ants. Well, it depends on the ant! For Bull Ants only I use a pair of forceps. For other large ants and for those of medium size the fingers are the best thing. For those which are fast and proficient at dodging it is a good idea to block their progress with one hand and try to pick them up with the other. With *Opisthopsis* and other exceptionally slippery customers it may be necessary to bring the fingers down on top of the ant. But this method should be avoided if possible with soft ants — of which *Opisthopsis* is unfortunately one. For the smallest ants one can either use a paintbrush dipped in alcohol or pick up a pinch of dust and ants and deposit it on your other hand; and then suck up the little ants individually with the paint brush. This way reduces the amount of dirt and sand which gets into the little phials — half filled with a mixture of 70% alcohol and 30% water — in which the ants are put.

It seems to be commonly believed that if one collects ants one must expect to get a lot of bad stings and painful bites. This is not so. Most of the Bull Ants are retiring creatures but it is well not to handle them. All the primitive Ponerine ants have powerful stings but most of them are most reluctant to use them, and the few which are likely to sting are fortunately not as a rule those best endowed to do so. I am bound to say that I have handled a lot of the notorious "Green Head" ants without any having stung me and have frequently had "Green Tree" ants walking over me without getting more than 2 bites in 2 months. Many of the smallest ants are vicious when disturbed but are not capable of doing much hurt to a human being. Any injuries you receive will probably come from mosquitoes and sandflies!

## THE CHILLAGOE LIMESTONE

Most people who are attracted to the limestone caves at Chillagoe confine their visits to what are generally called the Chillagoe Caves, actually the Royal Arch Caves, which are about three miles out of the town, and the only ones for which a guide is at present available.

However there are numerous other cave-systems that have not yet been properly opened up or even explored; others were open to the public when the district was more populated than it is now. Of the latter, eight have been gazetted as National Parks and Scenic Areas all in the Chillagoe—Mungana area. They are : Donor's and Tower of London; Jubilee and Diano; Cathedral; Geck and Spring; Eclipse; Ryan Imperial; Markham and Royal Archway.

The limestones themselves form a belt of late Silurian marine deposits running roughly S.E. to N.W. for some miles, and are part of the very complex Chillagoe Series. To the west, about three miles past the Royal Arch Caves, they lie unconformably on very ancient pre-Cambrian deposits.

As these rocks have not been altered so much by heat and pressure as similar deposits, such as those at Jenolan in N.S.W., fossils are quite plentiful. Some giant corals form columns of great height, but there are also a number of smaller fossil types represented. A good exposure of crinoids is said to be opposite the old Dorothy mine near Mungana.

Aboriginal cave-paintings are to be found in a few cave-shelters scattered throughout the district. There is a small but quite good series in a shelter near the Mungana caves, although unfortunately some of the paintings have been defaced by the action of vandals. Other paintings, but of no great extent are at Chillagoe (including Tower of London), Mungana and Calcifer. There may be more that remain to be discovered. In two or three places, grooves in the rock indicate a very early aboriginal culture. They were probably used as bone-sharpening grooves.

Vegetation supported by the limestone tends to be shrubby and stunted, and differs markedly from that of the surrounding open-forest country. There are two exceptions which may be found in either situation : the 'cocky apple' and a type of *Baubinia* with small dark leaves very different from the large-leaved species known to coast-dwellers. Worth mentioning are at least two species of kurrajong (*Brachychiton* sp.)—namely the flame and bottle trees, also a species of dry climate fig. These seem to thrive on the rocky environment afforded by the limestones. During the Wet season, spider lilies grow abundantly.

The shrubby undergrowth forms an ideal retreat for many species of small birds. These include brown honeyeaters, banded and masked finches, wag-tails, apostle birds, yellow honeyeaters and Jacky winters; also rainbow birds and black-faced wood-swallows from the nearby open-forest country. Larger birds are also well represented: many of the black-and-white birds such as magpies, pied butcher-birds, Bennet's crow, peewees and pied currawongs are common; black-faced and white-breasted cuckoo-shrikes; channel-billed cuckoos during the Wet season; blue-faced honeyeaters and white cockatoos. Both species of kookaburra can be heard frequently, or perched way up on a high part of the limestone formations—this is also a favourite look-out post for magpies and currawongs. A great bower-bird will occasionally build a playground at the base of a limestone bluff among low bushes, and such night-birds as frogmouths and owlet-nightjars seem to favor the protection afforded by the tree-cover to roost during the day.

S. J. TREZISE.

—O-O-O—

## THE BROWN HONEYEATER

I first heard the Brown Honeyeater up at Davies Creek Road. Its cheery little call was to be heard in the flowering bottle brush trees, but try as I would, I could not see the singer. As he flew from bush to bush, I scrambled



over the hot rocks, clasping my binoculars and every now and again scanning the bushes — to no avail. Then one day I heard him in our garden. I rushed outside only to see a flash as he flew to the gardens behind. This went on for some time until I began to think I never would identify this elusive singer. My only impressions to date were of a small brown bird streaking hell for leather away from me. At last came the day of recognition—there on my neighbours plum tree was a small bird, olivey brown above, light whitey grey under, yellow wash on wings, large curved honeyeater bill and yellow patches near the ear. A bird easy to lose in the foliage and well earning the name *Gliciphila indistincta*. (Fond of sweet — not clear.)

On August 28th of last year, I saw Brown Honeyeater pulling at some cobweb in our orange tree. Straight away I guessed nesting was the reason and watched to see where she would take her material. Much to my pleasure, she just hopped over the branch and began to build in that same orange tree, in good view of our verandah where much of our life goes on. The female only built the nest, a small cup shaped structure suspended in a small fork-made of narrow strips of bark, vine tendrils and bound together with cobweb and decorated with spiders egg sacs, lined with some sort of plant down. The nest was completed on September 1st. The male was watching near by all the while she was building but rarely came near the tree unless a Yellow Honeyeater or Lesser Lewin Honeyeater went to the tree to sip nectar from the orange blossoms. Then he flew there and chattered and chattered in fine style, but the two birds, both bigger than he, took not the slightest notice of him. On September 2nd the female just came and inspected the nest. On the 3rd there was one egg and on the 4th a second was laid and incubation began. The male did not assist in the incubation but sang in the neighbouring trees, keeping guard. The female would be well down in the nest, but the moment the male gave warning she would lift her head and listen, and if she thought it was necessary she would leave the nest and join the male. If she felt that danger was not imminent, she would sink down again. She left the nest quite frequently for food and at one period, I think because of a Spangled Drongo in the garden, she left the nest 6 times in 1½ hours, sometimes for as long as 10 minutes at a time. Even so, on 18th September the eggs were hatched and there were two naked babies with big yellow gapes. There was no sign of the egg shells in the nest or under the tree. A fine grey down appeared on the babies after 3 or 4 days. The female only fed them and they grew very fast. By 7 days their eyes were open. Now and again the male came down to the nest and looked at his children but if the female was there when he arrived, she quickly chased him away. By October 2nd except for very much shorter tails the baby birds wore the same plumage as the adults. On this day they left the nest. They were on the back of the orange tree and mother evidently thought I was a bit too close to them as she did a "broken wing" act through the church yard. I did not see the young again.

A few weeks later a neighbour showed me another nest built by the Browns, and I believe the young were successfully reared. I am sure they were the same parents as I have only seen the one pair flying around our garden.

The nesting season is now over, but still now and again I hear the cheery call note of this charming little honeyeater, and watch him splashing and enjoying himself in our bird bath.

M. L. CASSELS.



## KIAMA TO THE NATURALIST

BY L. CADY, KIAMA, N.S.W.

Kiama, with a population of approximately 5,200 is a popular tourist resort situated some 74 miles south of Sydney, between the Saddleback Mountain and the Pacific Coast.

The main tourist attraction is its famous "Blow Hole", which is seen to the best advantage during a strong South-east wind, when it shoots a spray

some 50 to 60 feet into the air.

Kiama offers a wealth of interesting subjects for all students of natural history.

The Geology of the area has commanded much interest for many years. The area is volcanic in structure. In the area between the Robertson plateau (approx. 2,800 ft.) and the coast the following rock, strata of Triassic and Permian age occurs together with a number of igneous rocks of intrusive and extrusive occurrence descending in the following sequence. Tertiary Basalt, Wianamata Group, Hawksbury Sandstone, Narrabeen Group, Wallaya Dolerite, Dhruwalgha Tinguaita, Nepheline Syenite, Minnamurra Latite, Camberwarra Latite, Saddleback Latite, Jamberoo Tuffs, Bumbo Basalt, Kiama Tuffs, Blowhole Basalt, and at different levels coal seams are found to occur. Around the sea shore one can collect fossils of marine shells imbedded in the Tuffs.

The area is well known for its Basalt quarries, these together with dairying, being the main industry of Kiama for the last 100 years, previous to this Cedar cutting was the towns livelihood.

The coastal plateau is rather hilly and steep, being clothed in most places with fairly heavy brush forest. In places pockets of good Rain Forest still exist, in these pockets we find numerous Ferns, Orchids and Rain Forest trees. (The rarer types will be included at the end of the paper.)

Referring to the orchids some 100 odd species have been recorded by the writer in Kiama and the surrounding areas.

Surrounding Kiama are Sandstone capped mountains which contain areas of interesting heath lands and of course the distinct sandstone Flora to accompany it.

On Jamberoo Mt. we have the Barren Ground's Faunal Reserve No. 3, two very rare birds still exist within the Reserve, they are 1. The Eastern Bristle Bird (*Dasyornis brachypterus*) and 2. Swamp Parrot (*Pezoporus walli-cus*) and on the slopes and in the gullies one often hears the Superb Lyrebird (*Menura novae-hollandiae*), The Green Cat Bird (*Ailuroedus crassirostris*) and the Eastern Whip-bird (*Psophodes olivaceus*) calling.

Another place of interest is the Minnamurra Falls Reserve, an area not to be missed when visiting Kiama. This Reserve is well known for its Ferns and its beautiful Lower Water Fall. Some 80 odd species of Ferns have been collected by the Curator within the Reserve.

Insects are found in fair numbers, well over 130 species of Ants have been recorded between Kiama and Nowra (25 miles South) and some 82 species of Butterflies are to be found in the surrounding area.

The Fauna of the district is not well known to the writer, but it is recorded that the following is to be found. Wombat (*Vombatus hirsutus*) Native Cat (*Dasyurus quoll*) Platypus (*Ornithorhynchus anatinus*) Spiny Ant-eater (*Tachyglossus aculeatus*).

#### RARER FLORA OF THE KIAMA DISTRICT.

**ORCHIDS.**— *Burnettia cuneata*; *Caladenia iridescens*; *Chiloglottis Gunnii*; *Prasophyllum densum*; *P. Woollsi*; *P. depectens*; *P. uroglossum*; *Bulbophyllum minutissimum*.

**FERNS.**— *Hymenophyllum bivalve*; *Sphaerocionium Lyallii*; *Pteris comans*; *Lindsaea trichomanoides*; *Mecodium rarum*; *M. australe*; *Macroglena caudata*.

**RAIN FOREST TREES.**— *Emmenosperma alphitonioides*; *Daphnandra micrantha* (Socket Wood); *Heimerliodendron brunonianum* (Bird-Lime Tree) *Euchryphia moorei* (Plum Wood); *Podocarpus elatus* (Pine Plum); *Litsea reticulata* (Bolly Gum); *Cinnamomum oliveri* (Oliver's Sassafrass).

In an article such as this, one could not possibly enlighten people to the other interests found in the Kiama district, and as a result many topics of interest must be sacrificed.

Kiama is, and we hope always will be a good hunting ground for the keen student of nature.



# WINNER OF THE H. FLECKER MEMORIAL MEDALLION ESSAY, 1961

IAN ORRELL, SMITHFIELD, AGED 12.

## "THE RED-BROWED FINCH"

The red-browed finch is a small, plump bird about three to three and a half inches in length. It has a grey breast and head, with a red rump, brow, and beak. The wings are olive-green and so is the back. It has a black tail, brown legs and feet and a white wash.

When I first started observing them I noticed that some had a yellowish collar around the back and sides of the neck, but another naturalist told me that these were birds which had crossed with other species.

The young red-brows have red rumps, beaks and brows, although one book I have says that the young birds have no red on their bodies. The young red-brows also have a white patch on their gape.

Their nest is an untidy ball-shaped one, with an entrance at the front. Usually it is made of dried and green fine grasses, but I have seen them made of dried and green bladey grass and even with the tassel from the sugar-cane arrows and they are lined with plant down, very fine dried grasses and the fluff from the sugar-cane tassel.

They build their nests in many places and I have seen them in banana trees, citrus trees, mango trees, papaw trees, the very tops of young pine trees about seven feet high, also in high bladey-grass, bougainvilleas and in the tops of granadilla vines. One made its nest in the top hands of a banana bunch.

The hen bird lays five or six white eggs in the nest.

The breeding season of the red-brow is supposed to be only during the spring and summer months, but this year red brows are still building and hatching in July. I think that this may be because of the extremely dry season and our farm is irrigated.

I have seen the red-browed finch feeding on guinea grass seeds, Mackie's Curse seeds, and other seeds of grasses. They also eat big brown flying ants and even dried carrion from the roadside.

At the beginning of this year it was very dry and there was not much food about, the little red brows would come in flocks of twenty or thirty to eat canary seed which I scattered on the lawn. Some bold ones would come under the canary cage for it, and even into my room for seed, and one even found the seed packet, and fed from that.

A pleasant and interesting incident happened in February when the red-brows built a nest in between two hands of bananas. The shape looked like a flattened-out kettle—which had been made of grass. Mum, thinking that there was nothing in the nest, cut the tree down and threw the nest into another row of bananas. About an hour afterwards, I looked carefully and found that there were five baby finches in it. These birds were put into a cage with a small piece of sheepskin to keep them warm. When I was putting them into the cage, one of the birds got away into some thick undergrowth, and it took me half an hour to find him. He had crawled into a tiny hole in the ground.

This all happened at about ten in the morning. They were fed on warm, sweet milk from an eye-dropper. The second morning on finely crushed Vita-Brits mixed with warm milk and sugar, and also cod-liver oil from a teaspoon. On the third day the cage was hung in a tree in the garden to let the little birds have some sunlight, and the parents found them.

I watched carefully how the mother fed them. She took canary-seed which I had scattered and cracked it up with her beak. This she made into a mash in her mouth and fed it back to the babies.

On the fourth day I let the babies out of the cage and found that four of them could fly, and these went back to the flock. The fifth one could not fly, and he was kept for another two days, one parent came to the cage each morning to feed him. When he could fly properly, he went with the others and joined the flock as well.

By watching the finches for almost a year I have found that bird-books are not always correct, and that the best way to study Nature is to observe for yourself.

## POT POURRI

One member mysteriously lost a budgerigar from his cage though all members in the family swore they had not opened the cage door at any time. This remained a puzzle for some weeks until one day, hearing frantic squeaks from the budgies cage, one of the family ran on to the verandah in time to see a Black Butcher bird pulling the bird through the holes of the wire cage. Despite the size of the bird and the smallness of the hole, he had nearly got the poor thing through—and so the weeks old mystery was solved.

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Re Black Bandicoots — another member states that he has also seen these animals at MacDonalds Creek and Bucklands Road, Babinda, his theory being that perhaps the animal had just come into its new coat of fur and so looked darker than normal.

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There is a very tidy spider at our house. Each night she makes her web on the front porch — a large round web — and presumably catches enough food during the night for her needs because when we go in to fetch the milk in the morning, she has taken down her web and not a vestige is left. Perhaps someone could tell us the name of this spider?

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## EDITORIAL

Members are reminded that subscriptions are now due again. Will you please help the Treasurer and the Club by sending them in without waiting for a reminder thus saving time and postage.

Would the member who asked for Journals 115 and 116 please get in touch with the Secretary as these are now available.

WANTED. Copies of the following journals are urgently wanted. Nos. 55, 56, 66, 75 and 109. If any one has a spare copy of any of these journals will they please send them to the Secretary.

The Club would also be glad to receive any old Journals no longer required as stocks of some of the older numbers are precariously low.

We would like to thank Mr. H. A. Bruce for his generous donation of Mr. Monkman's book "Escape to Adventure" for our Library and also to Mr Black for booklets received. If members have any books on Natural History that are no longer required, we would be pleased to receive them to help build up our Library. The Library is now painted and books in position and in future it will be open to Members or Visitors each Friday at 7.30 p.m. for borrowing books or informal discussion with each other. It is hoped that all members will make full use of this facility. As soon as possible a list of books will be sent to Country Members so that they may also borrow books.

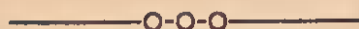
We congratulate Ian Orrell (aged 12) on his excellent essay for the Flecker Memorial Medallion, which is printed elsewhere in this Journal. Another junior member Peter Cassels (aged 9) also submitted an entry and received a supplementary prize. It is disappointing that only these two of our junior members entered for the competition.

Two successful Beach Field Days were held—Bells Beach in June and Yule Point in July. The former was a really cosmopolitan one, as we had visitors, 1 Cuban, 3 Americans, 1 New Zealander, 1 Scotshman, 1 Englishman and with members 1 Irish, 1 English, 1 Dutch and 1 Yugoslav the rest being Australians. It is nice to see so many visitors and representing so many countries. Bleak and cold weather rather marred this day causing the tide to recede very little and consequently not much of the reef was uncovered. However, all were satisfied with the specimens collected. A Death Adder was found, bottled and taken home for a small museum. Many interesting birds were seen in scrub not far from the beach. At Yule Point there was also a nice roll up of visitors and this time the weather was hot and sunny — a



perfect day for fossicking around the uncovered reef. Many interesting specimens were seen — eels, starfish, many species of crab, beche de mer and shells but the biggest thrill for several members was to witness the Blue Swimmer Crab emerging from his old shell and swimming slowly away. A junior member salvaged the complete discarded shell to take home. The August Field Day was held at Black Mountain Road, Julatten and once more we had several visitors with us. Birds were scarce, probably owing to the dry weather but most members were able to find things of interest.

The Australian Museum, Sydney has made a request for specimens of fresh water crabs from North Queensland and The Adelaide Museum requires specimens of the Bat-flies from this area. Should any of our country members to whom we have perhaps omitted to make a direct appeal through the post, be in a position to supply either or both of these two specimens, the members of the Committee will feel very grateful and will be only too pleased to forward them on to the respective institutions, together with locality and collectors name, and in the case of the Bat-flies the species of Bat (if possible) they were taken from.



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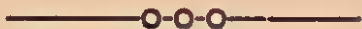
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# THE NORTH QUEENSLAND NATURALIST



CAIRNS

## Journal of NORTH QUEENSLAND NATURALIST CLUB

ADDRESS — Box 991, P.O., CAIRNS  
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"Each author is responsible for the opinions and facts expressed in  
his or her article".

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## **NORTH QUEENSLAND NATURALISTS' CLUB**

**Founder Presd. the late Dr. HUGO FLECKER.**

**OBJECTS — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.**

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## SOME OBSERVATIONS ON STONEFISH

BY R. G. GILLIS.

(Contribution from Department of Supply, Australian Defence Scientific Service, Defence Standards Laboratories, Maribyrnong, Victoria).

Our early work on stonefish venom was done largely on fish from the Solomon Islands obtained through the courtesy of Captain Wilding of the "Bulolo" and Captain Lawson of the "Malaita". These were *Synanceja verrucosa*, and are sufficiently different in appearance from the local *S. horrida* (*S. trachynis*) to deserve special mention. *S. verrucosa* has no deep transverse trough behind the head, but instead has a shallow vertical trough between

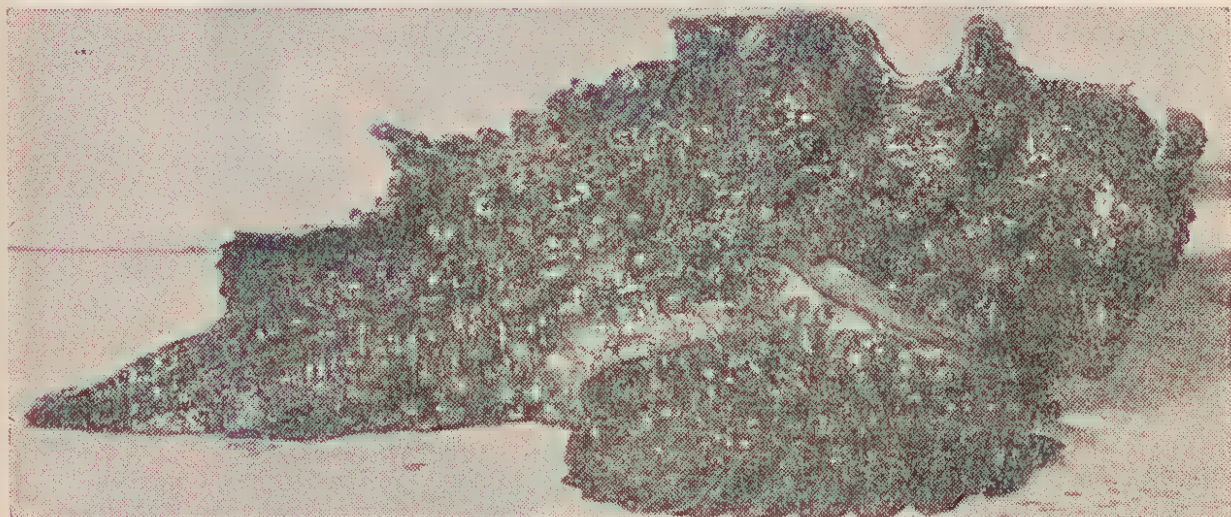


Fig. 1. — *Synanceja horrida* (*S. trachynis*).



Fig. 2. — *Synanceja verrucosa*.

the eyes. The suborbital pits are much smaller than in *S. horrida*. These differences in head structure are quite readily seen from Figs. 1 and 2. Another difference which does not seem to have been mentioned in the literature is that the bones and dorsal spines of *S. verrucosa* are all colorless, whereas in *S. horrida* they are a rather beautiful translucent blue. The Solomon Island fish also has irregular colored spots on its skin, mainly red and orange. In captivity these change slowly to give better harmony with the surroundings.

A variety of other fish often with little resemblance to *Synanceja* have



been forwarded to us in mistake for stonefish. The most interesting of these were two fish taken at Darwin by professional fishermen. Said to be common in the area, they are known locally as "stonefish". They had only three spines in the dorsal fin and were identified as *Batrachonemus trispinus* by Mr. R. Slack-Smith of the Victorian Fisheries and Wildlife Department. They are a type of frogfish and do not appear to have been reported previously in Australian waters.

In our first investigations, the fish were milked at Taronga through the



Fig. 3. — Sectioned spine showing deterioration.

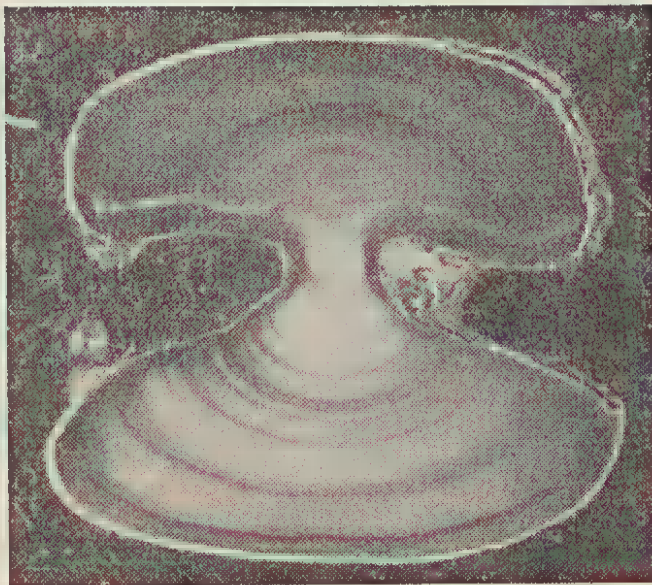


Fig. 4. — Sectioned spine (normal).

courtesy of Sir Edward Hallstrom and later transferred to Melbourne. Two methods of milking were used. In one a small glass test tube with rubber or polyvinyl chloride sheet stretched over the open end was forced down suddenly over an erect spine. This was similar to the method of milking snakes by making them bite through sheet rubber stretched over a small beaker. The



other way was to run a hypodermic needle down the side of the spine, pierce the venom sac and suck the venom out into a syringe. The fish were later sacrificed and dissected. There was no sign of regeneration of venom, though much scar tissue had developed.

One fish showed severe deterioration of the spines after the first method of milking. About half an inch of the spines remained exposed; this became cloudy and opaque from the tip downwards and the spine material decayed at the skin level so that the tips could be pulled out just like a child's deciduous teeth. Normal and decayed spines were mounted in polyester, sectioned and polished in the same way as a metallographic specimen and photographed in reflected light. In Fig. 3 the progress of the decay is clear. The growth rings in the normal spines (which are similar to growth rings in trees) could be used as a method of checking a fish's age (Fig. 4).

This type of decay has not been seen in fish which have only recently been taken, and was almost certainly due to an infection in the aquarium. Fish just caught often have a number of spines protruding through the skin of the dorsal fin and the venom sacs on these spines are almost always empty and show no sign of regeneration of venom.

We no longer endeavour to keep our fish alive for long periods, but we maintain aquarium accommodation because live fish frequently arrive late in the afternoon and it is convenient to keep them alive until we are ready to operate. Our present technique, which has been developed after collecting venom from several dozen fish, was worked out in conjunction with Dr. N. Erdstein when he was at Commonwealth Serum Laboratories. The fish is killed by severing its spinal cord at the post-occipital trough. The skin of the dorsal fin is cut transversely behind the third spine and along each side of the fin. It is held in forceps and pulled upwards and backwards towards the tail leaving the spines erect with the venom sacs exposed. The skin of the first three spines is similarly removed towards the head. The venom is sucked out of each sac through a curved hypodermic needle into a special glass container using the vacuum of a laboratory water pump. The venom collected in the flask is freeze-dried and stored.

Freeze-dried venom is a colorless, non-hygroscopic solid which redissolves in physiological saline and then has the same effects as fresh liquid venom. It has been shown to be essentially protein with some similarities to snake venom. It is antigenic, and an antivenene has been developed by Commonwealth Serum Laboratories which is available to registered medical practitioners.

The intense pain of stonefish sting is an obvious difference from snake-bite which is rarely painful in itself; many people have not realised they have been bitten by a snake until quite a long time afterwards, whereas stonefish sting is almost instantaneously painful. During our milking experiments at Taronga, one of our medical scientists was stung in the left third finger. There were two separate punctures about half an inch apart and the pain was quite noticeable in fifteen seconds. He gave himself a single injection of emetine hydrochloride between the two punctures and obtained rapid and complete relief. There were no after effects.

Emetine was first recommended by Dr. W. Armstrong of Lenakel in the New Hebrides. According to Dr. Wiener (formerly of Commonwealth Serum Laboratories) it has also been used effectively against the pain from the sting of the bullrout (*Notesthes robusta*) and of scorpions. Dr A. Reid of Penang Hospital has used emetine against the pain of stings by other fish, but it has not always been successful. Nevertheless, emetine seems to be a useful first aid measure despite its intrinsic toxicity, and it may be effective against such painful stings as that of the butterfly cod (*Pterois volitans*).

## Search for an Insect Parasite on the Northern Bangalow Palm

In Fiji there is a small caterpillar (*Agonoxena argaula*; Meyr.) which in certain places causes extensive defoliation of coconut palms. I searched for parasites for this pest during 1960 in Indonesia, New Guinea and the Solomon Islands and sent some species to Fiji. Early in 1961 I spent a few weeks in North Queensland and collected caterpillars of a related moth from leaves of the Northern King or Bangalow Palm (*Archontophoenix alexandrae* Mueller). This is one of the King Palms of Australia, which are known to forest workers as "walking sticks".

The family Agonoxenidae (Microlepidoptera) has only 2 genera with 3 described species and does not appear to have been recorded in Australia.

In the Northern Bangalow Palm the upper surface of the leaves is green but the underside is an attractive silvery grey due to a waxy excretion. It is on this surface of the leaf that the *Agonoxena* larvae feed. They eat away the leaf tissue between the veins leaving scars of often varying width, each beneath a slender web which is difficult to see unless it happens to catch the light. When disturbed a caterpillar will often crawl from its web very rapidly and jump off the leaf at the end of a thread of silk. Up this it can climb back to its food. They are only about half an inch long when full grown and as their colour matches that of the leaf they are rather difficult to find.

The species which feed on coconut in Fiji and other Pacific Island Groups frequent both surfaces of the leaf. But in Queensland I could find no trace of this insect on coconut palms, and on the Bangalow Palm it refrains from feeding on the upper surfaces of the leaf where it would lose the advantage of camouflage.

In some of the eastern islands of Fiji *A. argaula* strips coconut leaves to an alarming extent and it is so widespread that I never remember finding a single coconut leaf anywhere in the Group without at least some traces of its feeding. In Indonesia and other more western parts of its range it is however checked to a large extent by parasites and occurs only in certain places.

In N. Queensland the position is somewhat different from either. On *Archontophoenix* the caterpillars tend to feed near the base of the leaflets rather than the tip and near to the midrib rather than the edge. Thus, although it is unusual to find more than five or six caterpillars feeding on a leaf at any one time, the cumulative effect of their attack after 3 or 4 generations (i.e. by the time a leaf is about 6 months old) often causes the leaflets to split longitudinally and present a very ragged appearance. It was the sight of these dead, greyish leaf strips which first attracted my attention to this Palm as a likely food plant of an Agonoxenid.

There appear to be four species of parasites attacking the moth in Queensland, three on the larva and one on the pupa. Two of the larval parasites seemed important enough to be worth sending to Fiji.

In order to get a reasonable number of parasites (not less than 50) at the same stage of development for dispatch by air to Fiji in one consignment, it was necessary to collect about 150 caterpillars a week at approximately the same stage of development. This meant collecting from about two dozen palms. Whereas in New Guinea or Java I could have got a native to climb the trees and cut down the most promising looking leaves, in Australia (that land of "do it yourself") I had to cut down the palms — being unable to climb them. They were often more than 50' tall.

Regeneration of this palm is extensive and fairly rapid in the swamps where they seem most to thrive, so I did not suffer any qualms of conscience



in destroying some dozens of these elegant members of the local flora. So far as landowners were concerned no obstacle was put in my way once the object of the search was explained. For this I was very grateful.

To get sufficient caterpillars became a two-fold problem. Firstly—to find adequate numbers of palms in accessible places. Secondly—to get them to fall to the ground when cut. Undergrowth, often enriched with young *Pandanus* and that exasperating trap for the unwary, which I believe is commonly called “wait-a-while” or “lawyer vine”, made the going laborious and sometimes not even practicable. I found on some occasions the palms would just not fall down.

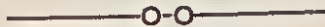
Eventually, within a radius of 30 miles from Tully, where I had made headquarters, I located three accessible groves of Bangalow Palms, enough to go ahead with the job. Fortunately, unlike those of some other native palms, the stems are easy to cut. An occasional fire-scarred old warrior—angled from exposure to the wind—would have a steel-like outer shell. But this was always less than an inch thick and inside there was little to resist the axe.

After felling, leaves were severed and laid in a heap—face downwards—and carefully looked over. Each leaflet containing a caterpillar was cut off and finally the parts required were trimmed and placed in a polythene bag. In such a container the food kept fresh for several days and the larvae developed naturally.

The parasites in which I was specially interested (a Braconid wasp of the species *Chelonus*) is one which attacks its host while still in the egg stage but does not kill it and finally emerge until the caterpillar is full grown and has spun its cocoon. In some collections I found up to 50% of the *Agonoxena* cocoons occupied by this parasite. However the *Chelonus* does not have it all its own way. It is itself subject to attack by an even smaller wasp parasite (not yet identified). In theory, therefore, if the *Chelonus* could become established in Fiji without the “hyperparasite” (littler leaf!) it should do better even than it does in Queensland.

Five consignments of the *Chelonus* were sent to Fiji during February and March 1961. Now we must await results. We do not know that it will be capable of searching for its new host on a different plant (coconut) from that to which it is accustomed in Queensland: but the experiment is worth trying. Entomologists may be sure of their ground when deciding whether a parasite is safe to introduce to another country; but they can seldom if ever forecast with accuracy the extent to which an introduced insect will do good. One has to hope for the best.

R. W. PAINE, Norfolk, England.



## Observation on a Pair of Varied Trillers

Birdwatching is an abiding interest of my family of myself and, aided by binoculars and patience, it is far more rewarding and interesting than mere book knowledge of the subject. We have strong fellow feelings for those who share our interest in birds and for those who devote their spare time to personal observations of natures ever present every varying wonders.

About a month ago I noticed a Triller in an orange tree between my house and my neighbours. It alighted in the uppermost branches, rested for about ten or twelve seconds and then went straight on to its nest. This, I have

observed since, is its usual habit. The nest is small, 2½" diameter by 1½" deep (outside measurements).

The parent triller almost covers the nest whilst sitting on the single egg. Observations, carried out daily, were made by my family and myself and it was very interesting to notice that the cock bird took his turn on the nest during the incubating. This changeover seemed always methodically done at about the same time each morning. About 7.0 a.m. the cock would fly to the tree and utter his very soft call—a soft trilling sound (which I learned to imitate to the seeming satisfaction of the trillers). The female would immediately vacate the nest and fly away. The male would then alight in the top of the tree and move to the nest without delay. As the birds were already sitting on the eggs when we first observed the nest, I cannot give the exact length of brooding time but it was just over a fortnight from first observing the nest that we found the baby chick tiny and featherless in the small shallow nest. (From observations since Mr. Minchins, three weeks is the length of time incubating the eggs. Ed.) The adult birds hardly left the nest for three or four days, keeping close cover over their prize baby. The chick grew fast and both birds took turn in feeding. Whilst the cock bird was away getting insects the female sat over the nest and chick and likewise the cock bird sat whilst the hen was away foraging. Seven days after the hatching the chick was clearly visible from the ground and at this time both parents were hunting for food which observation with the binoculars showed, consisted almost entirely of insects caterpillars predominating.

On the eleventh day after hatching, the chick got out of the nest and on each successive day afterwards left the nest for occasional short periods.

The birds seemed so tame and quiet that I decided to try and feed them if possible and find out if they would trust me close to their nest and chick whilst they themselves were there.

I tied a very fine piece of wire to a piece of fencing wire and this latter I tied to a strong stick for stability. The very thin wire was used to support the food—grasshoppers and caterpillars—which would be easily noticed by the parent bird, whereas the wire would not be so noticeable as to alarm them unduly. A grasshopper was first affixed and I walked beneath the nest (as we had been doing throughout our observations) and raised the insect towards the cock bird who was standing by the nest. He was a little wary at first and it was obvious that some instinct warned the chick that all was not well, for it turned round in the nest and tried to hide beneath the breast of the male. I proceeded very slowly to move the food towards the nest and soon had it within reach of the male who had been watching it intently all the while. He took the grasshopper (to my great satisfaction) hesitated a while as I moved away from the nest, and then flew to a nearby tree where he ate the insect. I then gathered some earth-worms and went through the same procedure when the female took charge, with the same result, the hen fluttering away to a nearby tree to eat as the cock bird had done. Toward evening when the hen bird had settled on the nest for the night (the usual habit of this particular bird) I placed several worms in succession on the wire and offered them to her as I had done previously. All were taken and eaten without the bird leaving the nest. The birds quickly learned to accept what we offered them, and seemed to appreciate the help we were giving them. The young bird is now (at the time of writing) fourteen days old and will probably leave the nest in the next four or five days. According to life-history studies, these birds are migratory and usually nest earlier than this but probably the unusually long dry season accounts for this late breeding. From my experience it is unusual to have trillers in this locality at this time of the year.

**Note.**—The chick left the nest four days after this article was written and the trillers stayed on in the area for over a month later.

A. F. MINCHIN. Edmonton.—27/5/61.



## EDITORIAL

The Officers of the Club would like to wish all members a Very Happy Christmas and Prosperous New Year.

Field Days were held at Davies Creek Forestry Road, Springmount Weir and the Barron Gorge. At the first named unfortunately very few were able to attend but for the "Birdos" who attended it was a most successful day, many interesting jungle birds being seen. A small black snake was found but not identified and after examination was returned to its piece of rotted fern. Quite a lot of members journeyed to Springmount Weir near Dimbulah and Town members were very happy to welcome several new and Country members. We always welcome the opportunity of meeting Country Members and hope that more will join us when the outings take us into their district. The last outing for the year was at the Barron Gorge when quite a party went up the new road where "Transfield" are tunnelling into the hill. We would like to see many more members coming to our Field Days and would remind them that only by all joining in and pooling their specialist knowledge can the rest of the members hope to learn something of the wonders around us.

We have to thank Miss Andrews, Mr and Mrs. Ziegenfusz and Mrs. Whitton for very kindly donating new books to our library. In this way we can build up a library to be proud of.

A successful Christmas Party was held at the home of our President, Mr. and Mrs. A. Read when we were entertained with some interesting Natural History films. Refreshments were served. A competition was held for the best cooking by a junior member and this was jointly won by Peter Cassels, Judith Cassels and Gail Corbet. Thanks to Mrs. Mear and Mrs. Geddes for donating the prize. Mr. Luppi kindly donated a duck which was raffled. Our thanks to Mr. Luppi. And particularly our thanks to Mr. and Mrs. Read who once more willingly and cheerfully put up with us all.

We regret that we have lost our Librarian and our Secretary who have both had to resign owing to their work. Mr. Cassels has now been elected Librarian with Lyn Corbet as a junior assistant. Mr. Carl Luppi has kindly consented to take on the job of secretary.

Will all members who have not yet paid their subscriptions, please do so as soon as possible. The Treasurer has had to be away from Cairns and so has not been able to send out reminders, so please help him by sending your cheques by return.

Will all members who have library books please return them to the library after Christmas so that the Librarian can make a complete inventory of all books owned by us so that lists can be compiled for the Country members.

—O—O—

## POT POURRI

The "Tidy Spider" has been identified for us by "Mrs. Spider" of Brisbane as *Aranea Producta*. If anyone is willing to listen I can hold forth for some time on my observations of this spider. Regret it has disappeared—whether eaten, oldage or just gone away to rear her young I do not know.

## CATTLE EGRETS

Cattle Egrets (*Ardeola ibis*) have been observed in the Innisfail area, by five observers during August, 1961. They were first noted by Mr. J. R. Wheeler of Geelong, Victoria.

One previous report of Cattle Egrets in this district was made by Captain H. L. Bell, (*Emu*, Vol. 61, Page 6), who reported seeing one bird.

There are over twenty birds in the present flock, and they closely attend a few cows, on several occasions they have been seen to alight on the backs of the animals. They also follow horses.

It is not easy to observe this flock as the cattle are on Private property, the owner of which does not like birds, nor the people who wish to observe the same.

In a general description, I would say the most distinguishing feature is, the hurried scrambling action of the birds when following the animals as they move; the flock keeping close to and under the animals all the time whilst feeding on the insects disturbed.

Only one bird showed any buff colour, so it would appear that they are not yet in breeding plumage.

The bill is short and thick, of a light yellow colour, the head and neck is also rather heavy. The overall size is larger than *Egretta garzetta*, but not quite as large as *Egretta intermedia*. Finally they have a hunched and anxious appearance even when not feeding, different altogether to the calm waiting pose of the other Egrets.

Contributed by Mrs. R. G. GILL, Innisfail.



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## A NEW FISH FROM THE CORAL SEA

(Pisces : Anthiidae)

BY GILBERT P. WHITLEY, F.R.Z.S.

(Contribution from the Australian Museum, Sydney.)

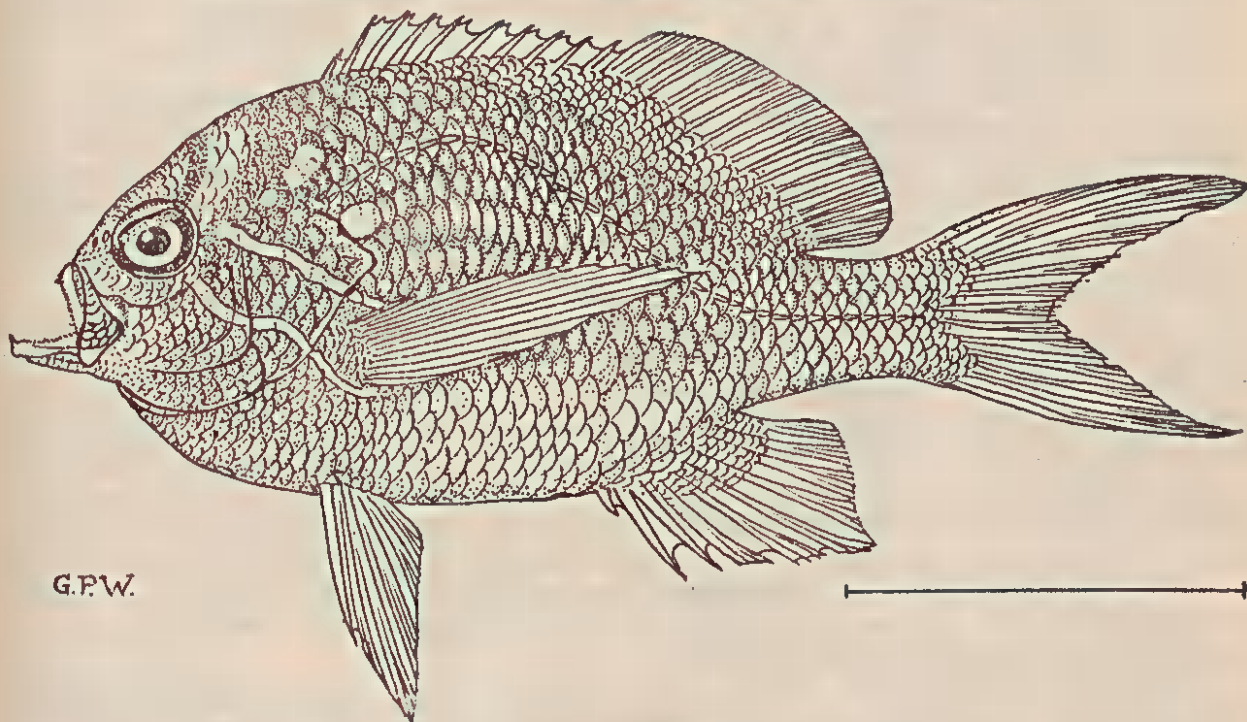


Figure 1.

Coral Perch, *Dactylanthias mcmichaeli* Whitley, Holotype.  
(Line represents one inch to same scale)

A collection of 456 fishes from islands in the Coral Sea, well to the eastward of Queensland, was made by Dr. D. F. McMichael, Curator of Molluscs, Australian Museum, when he was a guest aboard H.M.A.S. "Gascoyne" in 1960, and is preserved at the Australian Museum. The species are mainly Melanesian but a few novelties were obtained, one such being named hereunder.

## Family ANTHIIDAE

## Genus DACTYLANTHIAS Bleeker, 1870.

*Dactylanthias* Bleeker, 1870, Atlas Ichth. 7: pl. 282, fig. 3; 1873, Ned. Tijdschr. Dierk. 4: 94 & 168; 1875, Atlas Ichth. 7: 15, and 1876, Arch. Neerl. Sci. Nat. 11: 251. And of later authors. Type-species *Anthias aplodactylus* Bleeker, 1858, Act. Soc. Sci. Indo-Neerl. 3 : 3, from Amboina.

This genus has hitherto been monotypic but a second species from the Coral Sea differs from the type-species (*D. aplodactylus* (Bleeker) or *haplodactylus* of authors) as follows:—

A. Preopercle serrate. Maxillary long and narrow. Less than 19 dorsal rays, soft dorsal lobe pointed. P. 2, 15. L.lat. about 40. Profile sloping.

*D. aplodactylus*.

AA. Preopercle entire. Maxillary short and broad. 20 dorsal rays, the lobe rounded. P. i, 13. L.lat. 35. Profile roundly convex.

*D. mcmichaeli*, sp. nov

## DACTYLANTHIAS MCMICHAELI, sp. nov.

(Figure 1.)

Br. 7. D. x, 20; A. iii, 7; P. i, 13; V. i, 5; C. 13 branched rays. L.lat. 35 to hypural joint. Tr. 4/1/12 at dorsal origin to 3½/1/3½ on caudal peduncle. About 20 predorsal scales.

Head (19 mm.) 2. 8, depth (27) 2 in standard length (55). Eye, 6 mm.; snout, 4; interorbital, 6; length of pectoral fin, 21; of ventral, 15. Base of spinous dorsal fin (16 mm.), shorter than that of soft (18).

Head entirely scaly, including maxillary. Eight rows of scales across the

slightly convex interorbital. Eye large. Preorbital obtuse-angled. End of the exposed maxillary truncate, 3 mm. deep, reaching below front half of eye. Fine, upturned, pointed teeth in a single row in each jaw, much reduced in size near symphyses. A forwardly pointing, external canine on each side of lower jaw anteriorly. Apparently some minute teeth on the small vomer and palatines. Tongue acutely pointed, without a patch of teeth on it. Gill-rakers long and slender, 25 on lower part of 1st gill arch. No pseudobranch. Posterior nostrils pear-shaped, anterior pore-like. A flat opercular spine. Opercles entire, without antrorse spines. Isthmus narrow, trenchant.

Body strongly compressed. L.lat. complete, extending to hypural joint.  $1\frac{1}{2}$  rows of scales between l.lat. and the scaly sheath of the spinous dorsal fin. Each scale of l.lat. crossed by a simple tube. Body covered with imbricate, smooth, ctenoid scales which form sheaths for the fins. No auxiliary scales.

Dorsal spines increasing in height posteriorly, fins continuous, soft dorsal rounded. No produced spines or rays. Third anal spine longest, soft anal peaked. Pectoral rays simple, the longest longer than head. Ventrals below pectorals, close together, pointed, reaching to between vent and first anal spine. Caudal forked, lobes filamentous.

Colours: A kodachrome transparency of the freshly caught fish shows the general colour to have been rosy pink with the back and the centres of the scales on the flanks yellow. An oblique yellow stripe extends from eye across preopercle and opercle and ends at lower pectoral base. Another, shorter, oblique yellow stripe from upper part of preoperculum to near pectoral base. Fainter and broader yellow bands radiate from upper portions of eye. A yellow spot at top of gill-opening. An indistinct band along snout. Pupil of eye black, iris yellow surrounded by broad purple ring. Fins yellow but ventrals and anal purple anteriorly.

Colour in preservative bright yellow above, orange like a goldfish on the sides of body anteriorly, whitish below and behind. Eye blue; fins white. Series of dusky marks form indistinct bands along soft dorsal membranes. The stripes radiating from the eye have vanished after death.

Loc. Lihou Atoll (beyond reef crest), Coral Sea; 30/9/60. Described and figured from the holotype, 55 mm. in standard length or 3 inches from snout to tip of caudal. Australian Museum registered number IB. 4907.

Named after Dr. Donald Fred McMichael, Curator of Molluscs at the Australian Museum, who collected this and other fishes in the Coral Sea during a cruise of H.M.A.S. "Gascoyne".

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## EDITORIAL

We must apologise for the lateness of this issue of our Journal, but it is very difficult to get suitable material for publication and we should be glad if all those members who feel they are able would send us in articles or notes to keep us going. If you feel you cannot write sufficiently well, just send along the notes and someone here will put it into words for the Journal.

Juniors — we hope you have your Flecker Memorial Medallion Essays well under way as there is not much longer before the Show and we would like a good roll up of articles this year.

The Librarian and the Club wish to thank Mr. Whibley for his kind gift of two more books for our library.

Two Field Days have been spent at Wolfram Camp near Dimbulah. Much of interest was seen there especially for the "rockos". The first trip was a trifle damp but that did not dampen the ardour of the two car loads who braved the weather. So much was it enjoyed that another Field Day was held there and this time a few more cars were able to attend. An unofficial Field Day was held at Mount Peter as the official visit there was cancelled. Once more a great time was had with juniors catching many butterflies to send down to members who are interested.

A parcel of Bat Flies was sent to the South Australian Museum who expressed their appreciation and the hope that many more such parcels would be sent them.



# The Status of the Black Swan in Northern Queensland

BY JACK WHEELER

During my second visit to Cairns, in August, 1961, I was very surprised and intrigued to see a lone Black Swan (*Cygnus-atratus*), on the Cairns foreshore. This was the farthest north that I have recorded the Black Swan, and on my return to Victoria, I perused all available World Bird Day Lists, to find out to what extent this species is found in Northern Queensland.

Since the inception of World Bird Day Lists (published by The Bird Observers Club of Victoria) in 1952, 184 full bird lists of districts throughout Queensland have been made by a number of observers, and of these lists, only 27 have reported the Black Swan.

The species appears to be fairly well established in Southern Queensland, but what of the north ?

Reports show that Black Swans are permanently established as far north as Rockhampton, particularly at Gracemere, Yeppens, and the lagoons nearer the city, and the best count was made by L. Amiet, in 1955, with 523 birds for that district. Roy Wheeler, on four occasions, and as late as 1957, has reported a few birds at St. Lawrence. In July, 1961, I noted at least 50 birds at Bowen, and in February of that year Don Seton reported 8 birds on the Burdekin River, 40 miles south west of Ayr.

In 1952, Roy Wheeler and Nancy Hopkins, reported 40 and 60 birds respectively for Townsville, but in 1953 the total had dropped to 2 birds. Since then no further reports have come in from Townsville, even though regular bird lists have been made for the area. North of Townsville only two records can be found, the first from Jim Bravery, on September 3rd, 1960, with 28 birds on ponded waters of Tinaroo Dam, and as previously mentioned the one bird on the Cairns foreshore, on August 11th, 1961. A report by John Orrell in Nature Notes, published in Cairns, on August 24th, 1961, states the lone bird had been present on the foreshore for seven weeks, but it had moved on when I returned to Cairns on September 3rd.

In southern Victoria, the Black Swan is so well established, and with favourable breeding conditions, its population with fifty years of full protection has grown alarmingly, and in some areas has reached pest proportions to grazing properties, so much so that graziers in the creeping lakes area of mid south-west Victoria, agitated for an open season. Special legislation was brought down in Parliament and an open season declared for a limited period of 1961, during which time some 6000 birds were destroyed. Again in 1962, an open season has been authorised in an effort to reduce the swan population.

In December 1955, I commenced a study of Black Swans on Lake Wendouree, at Ballarat, in Victoria, and since that date almost 400 birds have been banded.

Banding of course is to study the habits, movements, breeding, etc., and the population at Ballarat is generally static, and the best recovery to date is 55 miles to the south at Lake Corangamite.

The biggest drawback in swan banding is that the life of bands are no longer than 2½ years, caused by the constant wear on the legs of a bird spending at least 90% of its life in the water.

With the big water storages now available on the Atherton Tablelands it will be interesting to see if the Black Swan will increase its numbers and become permanently established in that district.

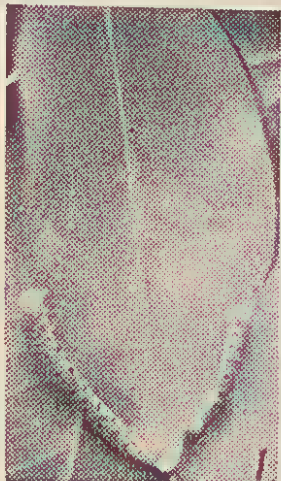
## Reference :—

World Bird Day Lists 1952/1958.

## Acknowledgement :—

Unpublished World Bird Day Lists to 1960, perused by W. R. Wheeler.



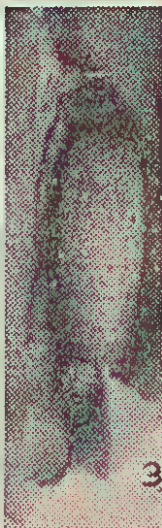
Notes on *Dysphania Fenestrata*—Family Arctiidae

During the month of February 1962 I found a great many larvae of *Dysphania fenestrata*, family Arctiidae (Tiger and Ermine Moths.) There were specimens at various stages of growth, some being only half an inch in length and thread like, others fully developed and reaching the length of three inches and as thick as one's finger. The position adopted by these caterpillars was the "accusing finger" attitude which was very noticeable. Great muscular control was shown as they stretched and remained rigid for long periods holding on only by their claspers. Being loopers, they can move around quite fast.

When small their colouration possibly affords them some measure of protection as they are of a greenish hue tinged with yellow, but on reaching maturity this protection disappears as they become large, smooth, and yellow with black spots, standing out against the large glossy leaves of their food plant, *Carallia integririma*, family Rhezopharac (mangrove).

These caterpillars are night feeders and do not appear to be voracious feeders. After careful inspection of the area where they were found, I failed to find larvae on any other plant.

When preparing to pupate, approximately three to four weeks after hatching, two leaves are loosely drawn together. The caterpillar shrinks to half its size and becomes much darker and nearly brown. During the next two days it becomes attached to the leaf and becomes immobile. The naked pupa with dark spots clearly visible through the brown pupal shell is left swinging in its cradle for the next three weeks until the adult emerges.





The forewings are a rich purple with pale blue patches (at first glance these patches appear to have no scales). The hindwings are a rich purple with seven or eight gold spots around the outer margin. The under side is similar in colouration. Wing span is three and a half inches. The head is gold, thorax purple with gold centre and the abdomen purple and gold striped. The antennae are long and slender and naked. Body length about 1½ inches, stout and hairy.

During the middle of March I was fortunate enough to see, without exaggeration, hundreds of these insects gathered together. They were resting on the trees of *Pseudomoious brunoniance*, family *urticaccae* (nettles) I didn't need a net to capture any as they were also very thick upon the ground which was rather moist at the time. Two days later I was unable to locate one adult in this area.

The eggs are laid singly on the underside of the leaf and are white and flatish. The incubation period is about one week.

The adult insect flies with a fluttering motion.

Evelyn Corbet. 266. Sheridan St., Cairns.

My thanks must go to Mr. Stephens for botanical names supplied, Mr. Shaw for photography and the Australian Museum for identification of specimens.

---

## SIPHONOPHORES

### PART 1 OF A SERIES.

The phylum Cnidaria is divided into three classes, the Anthozoa, Scyphozoa, and Hydrozoa. Within the latter class lies the order Siphonophora, composed of free-swimming or floating colonies each consisting of several types of polypoid or medusoid members attached to a common stalk or disc.

The siphonophores normally inhabit that food-rich zone near the water surface, and are maintained there by special mechanisms. In the sub-order Calycophora the common stalk is supported by swimming bells (nectophores), which are modified medusoid structures. Calycophora are quite numerous in local waters but are rarely seen by casual observers because of their transparency and small size. Much more obvious are species of the sub-order Physophorida, in which bouyancy is achieved by the formation of gas filled chambers or floats (pneumatophores), which also represent a modified medusan bell. The (inverted) bell closes over to enclose a space into which gas is secreted by cells in its lining membrane. *Physalia* affords an extreme example of this mechanism.

The phylum Cnidaria is notable for its polymorphism, that is, the variety of form to be found in any one species. This is well demonstrated in the Siphonophora where, under a hand lens, the great diversity of form and the high degree of functional specialisation exhibited by the "individuals" of a colony can be readily seen, and one marvels at the potential of the primitive tissues from which they arise. For each such colony commences existence as a single individual which in the process of growth buds off other individuals, often of an entirely different structure and function. Perhaps it is confusing to speak of "individuals" in this sense, for in a colony all members are interconnected by a common nutritional system, are arranged in orderly patterns characteristic of the species, and may be so specialised in function that they are dependent on mutual relationships for survival. Some serve only for locomotion (nectophores and pneumatophores), others are concerned with the detection and capture of food (dactylozooids, tentaculozooids) or its ingestion (gastrozooids); some are purely protective (bracts or phyllozooids), while others again are reproductive members (gonozooids). Dactylozooids and gastrozooids are derived by modifications of the basically polypoid form.

Nectophores, pneumatophores, bracts and gonozooids can usually be linked to a medusoid origin. In some cases the one member may participate in more than one function, but is nevertheless dependent on other members for the part they play in the life of the colony. The assemblage forms a mutually beneficial and participating unit, and it is this unit which we recognise as a single 'specimen'.

### PHYSALIA.

*Physalia* (figure 1) is the best known representative of the sub-class Physophorida, having a world wide distribution and fairly obvious physical characteristics. In addition it makes its presence known by inflicting painful stings. Its colouring is predominantly blue, though the upper margin of the float may show delicate shades of green or pink, and occasionally these colours extend to the whole exposed surface of the float. In the submerged members blue remains the basic colour, most intense at the attached ends of the polyps, often fading near the free ends, where it may be replaced with white or yellow tips.

The float (pneumatophore) is more than just a bag of air. It is a living muscular chamber secreting its own gaseous content (of slightly different composition from atmospheric air), having aerodynamic properties by virtue of its differentially curved surfaces, and capable of altering its shape under special circumstances — as in 'righting ship' after capsize, or in shifting bouyancy when the tentacle is attached to larger prey. The indented crest of the pneumatophore is strongly contractile, and it seems likely that sailing characteristics can be modified by muscular contraction. However the colony cannot deflate its sail, and is committed to its voyage irrespective of weather conditions. Persisting onshore winds lead to disaster, the colonies being cast up in thousands on beaches, or entangled in floating weed. There is however some provision for avoiding streams of floating material. The latter is driven directly before the wind, forming 'wind rows', whereas *Physalia* sails at a slight angle downwind. This course is determined by curvatures of the float, and the underwater resistance of the dependent members, which provide a keel and rudder mechanism. A further provision against mass extinction is the development of 'right hand' sailers and 'left hand' sailers. Figure 2 illustrates the variations in shape which accomplish this. One is the mirror image of the other. If the sailing angle of one batch results in destruction the others, sailing to the opposite side of the wind, may escape. It is not certain whether right and left sailers are produced in equal numbers in any given area, or whether a particular shape breeds true. It has been said that the different shapes represent adaptation to the different conditions in the Northern and Southern Hemispheres, but other workers deny this. Both right and left forms can be collected in this area.

Apart from mirror-image shapes, *Physalia* exists as two distinct species, the Atlantic form *P. physalis*, and the Pacific form *P. utriculus*. Without exception the many hundreds of specimens taken by me from north Queensland waters have been *P. utriculus*, and this is the species illustrated in Figure 1. It will be seen that there is but one major fishing tentacle, in contrast to the many major tentacles described for *P. physalis*.

In *P. utriculus* the major tentacles arises from an outsize polypoidal dactylozoid situated near centre of buoyancy on the under surface of the float. This tentacle may be as long as 20 feet when fully extended and even small specimens carry tentacles fifty to one hundred times as long as their floats. In addition to the main tentacle *P. utriculus* usually has a number of minor tentacles, of similar construction, but rarely exceeding a few inches in length. Figure 3 shows such a minor tentacle magnified to show details of its structure. The tentacle arises from near the base of a dactylozoid and consists of a muscular membrane thickened along one edge. At regular intervals along this thickened edge are bean-shaped protrusions or bosses covered with tiny spherical stinging capsules or nematocysts. These minute structures



function on contact with solid food, each discharging a fine tube which serves both as a harpoon and as a channel through which toxin can be injected into the victim.

When 'fishing' the tentacle hangs relaxed to about half its potential length, periodically shortening to bring captured food within reach of the lesser tentacles and the mouths of the gastrozooids.

Figure 6 shows three typical gastrozooids of *P. utriculus*. These are the 'stomachs' of the colony, and the only portals through which nutrition can enter. At the free (lower) end of each gastrozooid is an opening leading into a large cavity within the polyp and this cavity is lined with digestive and absorptive membrane. The mouth (which is also the anus) is under muscular control, as are the walls of the cavity, and both are capable of enormous expansion. Nutritive material too large to enter the cavity is not discarded—instead the mouth opens widely and the digestive lining pouts outward to be applied to the surface of the food. Thus quite large fish can be carried underneath the colony, and be digested by a multitude of extruded 'stomachs'. Nourishment obtained by the gastrozooids is distributed throughout the colony.

The structures illustrated in Figure 4 are small dactylozooids, perhaps having some sensory function, and certainly affording protection to more vital members. They may in addition have some value as storage tissues.

Figure 5 shows a cluster of reproductive elements arising from the familiar polypoid form—in this case a gonozooid. The stalk bearing the sexual 'fruits' (male and female gonophores) is referred to as a gonodendron; the large leafy fingers are protective gonopalpons. In large specimens from southern waters gonodendrons make up the major mass of submerged elements, and the more mature female gonophores may show distinctly medusoid characteristics. However specimens from the Cairns area are usually small, and apparently immature. Reproductive members may be hard to find on specimens less than one inch in float length. On larger specimens the gonozooids tend to be concentrated under the more bulbous of the two projections from the float, and may be recognised by their more subdued colouring and tangled appearance.

Despite the obstacle offered by the Barrier Reef, *P. utriculus* is not uncommon in waters near Cairns, but never attains the size and numbers so troublesome on the beaches of southern Queensland, and New South Wales. Tiny specimens with globular floats only a quarter inch in diameter are often seen in trinity Bay following strong south-east winds, and sometimes after northerly winds, though the latter tend to reveal larger specimens one to three inches in float length. Outsize *Physalia* are sometimes reported from waters off the northern coast of Australia, the floats being described as "big as foot-balls". As yet however no such specimen has been submitted for study.

J. H. BARNES.

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(ILLUSTRATIONS ON PAGE 10.)

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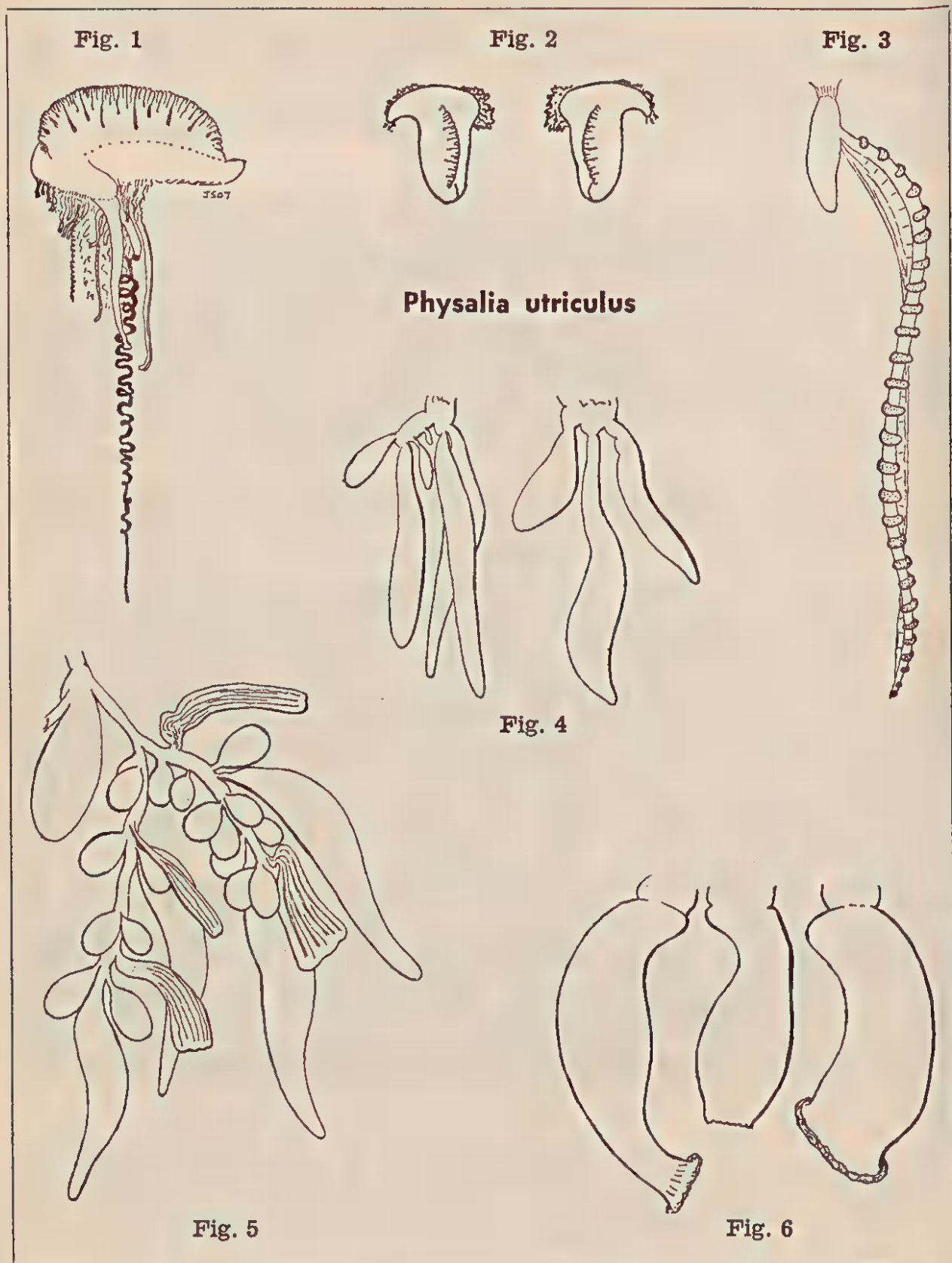


Fig. 1. *Physalia utriculus* La Martiniere, 1787, reproduced 1/3 actual size. Note the single major tentacle which distinguishes this species.

Fig. 2. Reversed (mirror image) shapes which diverge when sailing.

Fig. 3. Dactylozoid with minor tentacle — 5 times actual size.

Fig. 4. Dactylozooids — protective members of the colony. x 15.

Fig. 5. Gonozoid, with gonodendron, gonophores and gonopalpons. x 15.

Fig. 6. Gastrozooids — the mouths and stomachs of the colony. x 15.



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Founder Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**GENERAL MEETING** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** excursion usually fourth Sunday.

**VISITORS** are welcome, especially members of Australian and Overseas Clubs and Societies.

**LIBRARY** open each Friday night at 7.30 p.m. and Club night.

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**Treasurer's Address** — P.O. Box 991, Cairns, N.Q.



## EDITORIAL.

Once more we come to the end of the year and we feel that it has been quite a successful one. Meetings have been well attended as have the monthly Field Days. Yule Point, Black Mountain Road Goldsborough and Isabella Falls were some of the places visited where many things of interest were seen and collected. It is pleasing to welcome so many visitors — Interstate and Overseas — to these gatherings, when we can compare notes and ideas with members of other organisations and other countries.

Once more we congratulate Ian Orrell on his excellent essay on the Orb Weaving Spider which won him the Flecker Memorial Medallion. It is printed elsewhere in the journal. Well done Ian.

We must thank many of our members for welcome additions to our Library, — Mr. A. H. Bruce, Mr. Ziegenfusz, Mr. Read Mr. Cantrill, Miss Taylor and Mr. Whibley.

We regretfully announce the death of one of our old members — Mr. Daniel Peiniger who was recently killed in a road accident. Mr. Peiniger has been a member for many years, serving for several years on the Council. Owing to his advanced age he has been unable to attend meetings and Field Days of late and was missed by the members.

Now that the new year has commenced we have to ask once again if members will please pay their membership dues promptly to the Treasurer. It takes much time and money if the Treasurer has to write to all members reminding them of this and so we ask please send your dues without any more notice. Thank you.

Some time ago the Australian Museum requested the Club to send them if possible, Fresh Water Crabs for study. This month a bottle containing five Fresh Water Crabs was dispatched to them. We hope they will be of value to the Museum.

At this point the Editor would like to congratulate our President Mr. A. A. Read on his election once again. This makes it 14 years that Mr. Read has held the chair and this he has done right ably.



## A SEQUENCE OF EVENTS.

A few years ago I was staying with friends at Mackay. The bathroom was being rebuilt and during the process we had to use an old and rather dark temporary bathroom. As I entered it one evening, switching the light on I was just in time to see a large tarantula spider pounce on a large brown cockroach. The spider sat there proudly with the cockroach sideways across its mouth but its triumph was short lived for a large green frog sprang from a corner and in a second had eaten the two right up.

Next day I noticed at the end of the yard several ducks and some noise. To my astonishment I saw an extra large clean white duck with her neck outstretched and swallowing violently, and dangling from her mouth the protesting hind legs and half the body of the green frog. Even as I watched an extra large swallow made the whole frog disappear down the duck's neck. I could not help pondering how each living thing in turns seems to become food for some other living creature.

Two days later was Sunday and the duck was killed and provided the Sunday dinner so one could say from cockroach to spider to frog to duck to man. I do not care for duck much.

IRENE MEARS. — (14/2/62)

Not fiction but actual facts.

## REDISCOVERY OF AN ORCHID (*Bulbophyllum lilianae* Rendle) AFTER 44 YEARS.

Rupp and Hunt, Proc. Roy. Soc. Qld. 60:6, 62 (Dec. 1949), stated that no reference to this orchid had been made since its original description and apparently no reference has been made since 1949. In August 1961 Mr. K. Wadsworth of Millaa Millaa collected a small *Bulbophyllum* on the Evelyn Plateau, Nth. Queensland and sent part of it to the present author who thought it might have been a small *B. lageniforme* F. M. Bail. Subsequent examination of specimens of this latter species from 3 localities showed that Mr. Wadsworth's plant was not Bailey's species but Rendle's. This collection, only the second, after a lapse of 44 years, is a truly praiseworthy feat.

The following description and illustration were prepared from the above-mentioned fresh material :

*Bulbophyllum lilianae* Rendle, Journ. Bot. 55:308 (1917).

A small epiphyte. Rhizome about 0.75 mm diam., extensively creeping and branching. Roots rather short, about 0.4 mm diam. Pseudobulbs spaced at intervals of 5—15 mm between centres along rhizome, 6—11 x 3—5 mm, obliquely conical, shallowly sulcate, rhizome embracing. Leaves barely petiolate 15—27 x 4—6 mm, narrow-oblong. Peduncles 15—20 mm long, filiform. Pedicels, plus ovaries, about 2 mm long, tuberculate. Flowers solitary, widely expanding, reddish, the sepals and petals 3 nerved, the nerves not extending to the apices. Dorsal sepal about 5.0—6.3 x 2.0—2.8 mm, oblong-lanceolate sparsely tuberculate near the base. Lateral sepals 4.0—6.0 x 3.0—4.3 mm, ovate or subdeltoid, joined at their bases to form a truncate mentum. Petals 3.0—4.5 x 1.0—2.0 mm, oblong-lanceolate very obtuse. Labellum joined to the apex of the column foot by a short lorate claw, about 2.0—3.0 x 1.2—1.5 mm, erect in basal half (where obscurely lobed at the base), thence bent at right angles, lamina ovate or almost deltoid, obtuse, broadly grooved above (almost concave), margins deeply decurved or almost revolute, no ridges present unless the uppermost portion of the "rolls" from the groove to the margins be called such. Column about 1.5 x 1.3 mm with a greatly curved narrow foot about 1.5 mm long; wings very broad but short, truncate anteriorly but with an acute tooth on the apices, which extend about half way up the anther. Stigma subpyriform. Rostellum ovate, saecate. Anther broader than long, reniform when viewed from above, not rostrate. Collinia 4 in 2 pairs, pyriform when viewed from the side.

This species is perhaps most closely allied to *B. lageniforme* F. M. Bail but differs in the following respects :

(a) pseudobulbs spaced along rhizome instead of massed and are slender oblique-conical and shallowly grooved rather than broad, depressed and deeply grooved.

(b) Flowers about half the size, reddish rather than pale green and widely expanding.

(c) Dorsal sepal longer than the lateral ones rather than the reverse.

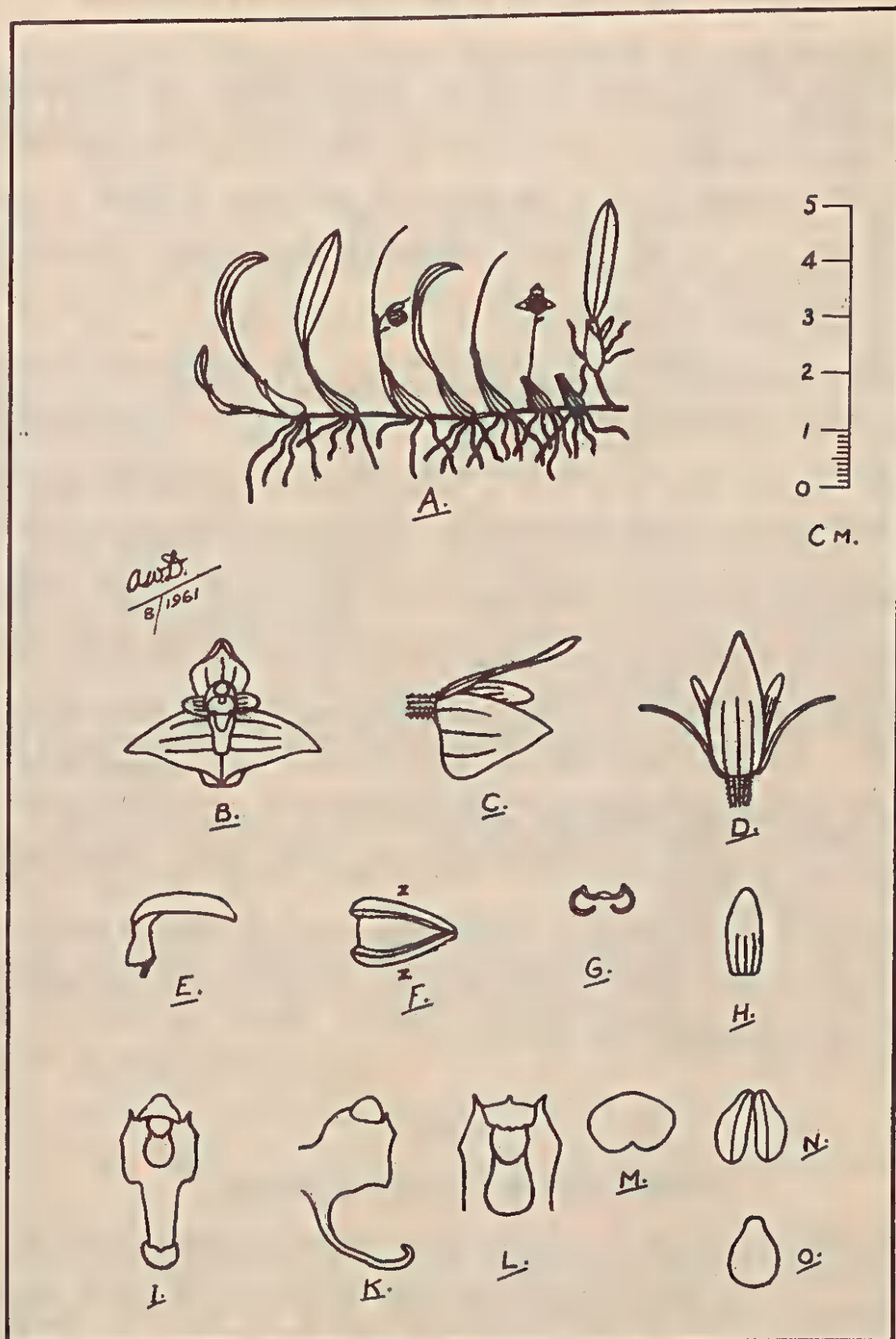
(d) Labellum much smaller in relation to the remainder of the flower and lacks the central ridge.

(e) Stigma pyriform rather than transversely oval.

A. W. DOCKRILL.



## BULBOPHYLLUM LILIANAE RENDLE



- A. Portion of Plant.....Natural Size  
 B. Flower from the Front.....x 5  
 C. Flower from the Side.....x 5  
 D. Flower from Above.....x 5  
 E. Labellum from the Side.....x 5  
 F. Labellum from Above.....x 10  
 G. Cross Section of Labellum at

- H. Petal.....x 5  
 I. Column from the Front.....x 10  
 K. Column from the Side.....x 10  
 L. Top of Column (Anther Re-  
     moved).....x 15  
 M. Anther from Above.....x 20  
 N. Pollinia from the Front.....x 30  
 O. Pollinium from the Side.....x 30

## NOTES ON THE AUSTRALIAN PRATINCOLE

The years 1961 and 1960 have been very dry and arid over most of North Queensland, the more inland areas being drought stricken. Such conditions have caused ■ movement of several species of inland birds to the more favoured coastal and near coastal localities where suitable food supplies are more readily available.

A very graceful visitor is the Australian Pratincole (*Glareola isabella*.) Generally grouped among the shore birds (waders), Pratincoles like the Stone Curlew, have, over the ages, adapted themselves to the more arid inland conditions, the Australian Pratincole in particular extending its range to the centre of the continent.

Pratincoles are medium sized birds, nine to ten inches in length, and generally rufous in colour, the rump being white and the abdomen chestnut. The bill is short and the tail deeply forked. Having long legs and an upright stance. Pratincoles move swiftly over the bare ground which is the favoured habitat. It is said to feed mainly in the air, but I have not found this so in local areas. The local birds catch most of their food on the ground and only on rare occasions were birds seen to catch insects in the air the favoured food being newly hatched grasshoppers, which emerge from bare or plowed fields. When not engaged in keeping the grasshopper plagues in check, the birds engage in spectacular flights. Some of the flocks were quite extensive and several times during September 1961 over 100 birds were in the air. These long winged birds are very graceful whilst engaging in their erratic flight, wheeling and side slipping, occasionally just skimming the ground like swallows, calling out in a sweet voice.

It was in May 1960 that I first observed *Glareola* in local habitats and by the end of October all were gone. However, this year, 1961, the influx of birds arrived in May, large flocks regularly being observed until October when the flocks gradually became smaller and in November only a few birds remained.

It is believed the Australian Pratincole has a winter migration to the islands north of Australia including Borneo and Java. Closely related species are abundant in Africa and India where the birds are much in favour being known as Locust Birds.

Nesting of the Pratincole is on bare ground and the clutch is usually two or three eggs. The incubating period is approx. 18 days. Like other waders they adopt the "broken wing" display to lure enemies away from the nest site.

It will be of considerable interest to note if *Glareola* becomes a regular visitor to local habitats in the future years.

J. A. BRAVERY, Atherton.



## OBSERVATION ON FLYING FOXES.

Recently I went out to the Flying Fox camp on Snake Island in the Daintree River and examined some of the Mangrove Trees killed by the Foxes. I wished to find out why these trees had been killed and it did not take me long to find out the reason. The bark of the trees was absolutely scratched to pieces. When the Foxes were disturbed or were leaving the camp in the normal way, they climb up by means of their claws to get ■ clear site for launching into the air, and in so doing, day after day, they soon killed the trees.

There is a belief amongst a lot of people that Flying Foxes bring mosquitoes. This is not so here at anyrate, The Foxes have moved in the last few days to within a stones throw of my camp, and there has not been a mosquito in my camp since they came. Normally there are quite a lot of mosquitoes.

A FIELDING, Mossman.



## THE ORB-WEAVING GARDEN SPIDER.

The Orb-weaving Garden Spider is about 2-2½ inches in length from front to back legs. Her body itself is about an inch long and the abdomen about ½" long and at the widest 1". All of her body, including her legs is a light brownish-grey, but the joints of her legs and abdomen are a dark brownish-red. She also had brownish-grey hairs on her legs and body. Her fangs dig in an insect horizontally.

**Habits** :— She sleeps in a curled up dried leaf similar in colour to herself. Her leaf is about 5 ft. from the ground. At dusk (6.15 p.m.) she was on the job. She climbed on to the cross bearer of the passion fruit trellis and faced her spinnerets to the sky and let the wind carry the fine strand of silk to a branch of the bouganvilla. When she had this guy-line erected she then spun silk round and round it all the way along to strengthen it. The next thing was to take a stay from the strong guy line to the ground. This kept the snare from blowing into a horizontal position in the breeze or strong wind. At 8.30 p.m. the web was completed and Mrs. Spider went to the centre of the web and waited for a foolish insect to fly into her well-made snare. The snare is about 2' 6" in diameter.

Just then a medium sized moth flew into her snare. She immediately darted to the insect and fanged it, she then plastered it with thick masses of silk which were wrapped round the moth with the back legs. The silk was divided into two parts shaped in a V with the apex at the spinnerets. She then attached her spinnerets to the part of the web around the moth and let out one strand of silk. With the claws on her back legs she cut the strand. This was done all around the bound moth. She grasped it in her fangs and moved to the centre of her web where she then wrapped the moth and the piece of web cut out onto one large ball with some more thick silk. Then she had her evening meal.

On the few nights around the date of the full moon she would not make a snare at all, but she only hung from a strand of silk in the shadow close to the trellis. As the moon grew smaller she moved out towards the centre of the strong guy-line.

At 5 a.m. next morning while it was still pitch dark there was no sign of the well-made snare but there was only the strong guy-line and the stay.

The strong guy-line is about 16' 6" in length and about 6' from the ground and the stay is about 6' from the guy-line to the ground.

A snare and guy-lines, similar in shape to that of the Orb-weaving Garden Spider were found about 2" away from the black wall of a shed. The bottom of this snare was about 1' from the ground. It was 21" in diameter and it was found that it belonged to a young Orb-weaver. She left her web up all the time and the web can hardly be seen. When she cut out a piece of web with a bound insect she left the hole there all that night and the next day and on the following night she set to work and patched it.

When Mrs. Spider was under observation by torch light and two 200 watt. bulbs her habits differed. A piece of linen thread was tied across from the passion-fruit trellis to a branch of the bouganvilla in place of the strong guy-line. She accepted this offer. She didn't come out of her cosy leaf until 7.10 p.m. because I was switching the torch on and off trying to observe how she began her work. She climbed on to the cross-bearer of the trellis and finding that there was a strand of something there she began to spin silk round and round to strengthen it. I switched lights off and let her continue her evening work. At 7.45 p.m. lights on again. She had the main frame of her web built. Her stay was put down and the main-bearers of the web were built. At 8.30 lights were on again. She had completed about 1/5 of the hair fine circular part of the web.

Building was further delayed for another five minutes when a stick

## THE ORB WEAVING GARDEN SPIDER — (Continued)

insect was thrown into the uncompleted web. She immediately fanged it and then she plastered it with very thick masses of silk which were wrapped round the legs first and both legs and long thin body. As before the silk was divided into parts and the web was cut in the same way. She took him in her fangs and moved to the centre of her web and she hung him in a horizontal position by two strands of silk. She then patched the web where the piece had been cut out and continued to build her snare. At 9.15 p.m. the lights were switched on and she had completed about another 6" of the fine circular part of the web. At 9.45 p.m. when the lights were turned on, she had about  $\frac{1}{2}$  of the web completed (23ins). At 10.45 p.m. when I last saw her that night she had the web finished and was feeding off the bound stick-insect.

She didn't like being observed by torch-light and two 200 watt. bulbs so she moved camp on another part of the Farm about 85 yards away. She was moved back to her old place. Her banana leaf was cut, taken to the passion-fruit trellis and pushed into the tangled vine. That night she made her web in the same position but next morning she was gone. Mrs. Spider had moved to the fence line of bananas 35 yards away. The banana leaf was cut and tied securely to the trellis. This time she built the guy-line from the trellis to the shed and the stay was built on to the back of the car. The next morning she was gone and I haven't seen her since.

These observations have been made over a period of six weeks.

Name :— IAN ORRELL, age 13 years..

Address :— Box 1, Smithfield via Cairns, Nth. Qld.



## POT POURRI.

Theres no doubt about it, we Naturalists do see weird things in peculiar places. A friend of ours a keen naturalist is Night Porter at a Hotel in the North. One night whilst engaged in the cheerful occupation of cleaning the urinals, he noticed some little "wrigglers" in the troughs. On inspection they were found to be elvers. To get to that place, these elvers had swum up the pipe discharging into the sea, turned a right angle up and then through a grating and another right angle to get out into the troughs. The elvers were collected and preserved in alcohol and eventually sent to Mr. Whitley of the Australian Museum, Sydney, who identified them as Long Finned Freshwater Eels *Anguilla reinhardtii* Steindachner, 1867 and stated that they were evidently migrating inland from the sea. This took place in March 1962. The elvers have now been added to the Australian Museum Collection.



## ERROR.

In our last Journal there was an article by Mrs. E. Corbet on *Dysphania fenestrata*. This was stated to be the family ARCTIIDAE but we have now been informed by The Australian Museum that there was a clerical error made when writing to Mrs. Corbet informing her of this and should read family GEOMETRIDAE.



## SHINING STARLINGS (*Aplonis metallica*)

On November 14th 1960 the peace of our garden was shattered by the arrival of a colony of Shining Starlings who decided to build in the Rain Tree of Peru (*Samanea saman*) in our neighbours garden. This was the first time they had built there in the 10 years that we have lived in this district.

**Nesting.** There was a great deal of fighting and brawling as each pair of birds wanted the best site, the most favoured place being at the end of a branch. A Yellow Fig Bird (*Sphecotheres flaviventris*) was sitting on two eggs in a nest built on the outer end of a branch. One morning when the male Fig Bird was taking his turn in incubating, about half a dozen Starlings began to worry him, diving and pecking him till in exasperation he left the nest. Immediately two Starlings flew on to the nest, picked up the eggs in their beaks and dropped them over the side on to the grass beneath. My son ran into the garden to verify this and sure enough, there were the two broken Fig Bird eggs lying on the neighbours lawn. The Starlings then proceeded to incorporate the nest into their own. Other Fig Birds were nesting in the same tree but more to the inside and they were not molested at all by the Starlings. Obviously it was the nest site the Starlings wanted and it was not just animosity to another species of bird.

It was noticed that many of the breeding birds were still in immature plumage. Some pairs were both black, others were black and immature and yet again others were both immature. As the time went on the immature plumaged birds gradually became darker and darker until by the time they left us they only had an odd streak or so of white on their breast.

Materials used in the building were dried vines and grass with an occasional decoration of leaves. When the children threw some coloured paper streamers into the garden, they were eagerly snapped up and some of the nests were tastefully decorated with white and green streamers.

The actual building occupied about 14—18 days but all during incubation and feeding the birds were adding to their nests, poking and pulling at them like a woman titivating her hair. Usually about 3 or 4 nests were built in a bunch actually joined together. Always one bird was at the nest, probably because of the thieving ways of the others. I am sure if both birds had left the nest together, there would have been no nest to come back to. The moment a pair of birds turned their backs for a minute, other birds would be there to start pulling the nest to pieces and incorporating the material in their own nests. When a bird arrived at its nest with a long trail of dried vine and started to twist it into its nest, about half a dozen others would fly up to try and steal it. They would hang—a dead weight on the vine with the vine swinging to and fro like a pendulum. Sometimes half a dozen would all be hanging on the vine like an animated necklace. If a piece of material dropped towards the ground a number of birds would all make a dive for it, invariably one catching it before it reached the ground. When they started to build they would twist the vine round and round the branch following it around like a circus performer. The nests were large and bulky structures with a side entrance and when finally able to examine some there was no attempt to line with down or feathers, just some finer grasses.

**Brooding.** It was difficult to see if both birds took part in incubating as there was such constant coming and going and squabbling and fighting but it was my impression that both birds took their turn sitting.

**SHINING STARLINGS (*Aplonis Metallica*) — (Continued)**

The first egg shells were found under the tree on December 14th making it about 3 weeks from eggs to hatching. From the number of pieces of shell I would say that the average clutch was three. There was no effort made to dispose of the shells or hide them in any way, they were just pushed out of the nest to the ground below. One or two babies were found on the ground under the tree — little black naked squiggles.

The parents were kept very busy feeding the young, but as always there was one bird left at the nest all the time, usually spending its time tucking in stray ends and generally tidying up the nest. Soon it was possible to see small heads at the entrance of the nest and the moment the feeding adult appeared the mouth would gape open and a large berry was thrust into it. Underneath the tree there was a litter of different sorts of seeds regurgitated by both young and old. One of the neighbours complained that when they mowed the grass, their ankles were nearly flayed by the motor mower kicking up all the little hard seeds. Evidently there was not much effort at nest cleaning as when some of the nest blew down, there was quite a lot of excreta inside. January 31st was the first time I saw any of the young out of the nest. They were quite small—dark grey black, whitey yellow breast streaked with black and no red eye.

**Food.** The Starlings were very fond of cultivated fruits such as mulberries, which they ate unripe, pawpaws and custard apples. Of wild fruits they eat Birds Eye Chillies, Queensland Olive (*Linociera ramiflora*) Nutmegs (*Myristica muelleri*) and *Planchonella*. This was learned by taking seeds regurgitated to the Department of Agriculture where they were identified for me.

**Behaviour.** From daylight till dark there was a constant din from their fighting and thieving. For some reason, one nest was torn to pieces by a dozen or so birds, each one triumphantly taking loot home to incorporate in its own home. When the rest of the nest fell down, by the end of half an hour there was not a piece left on the grass as they all dived shrieking madly to tear it to bits.

Towards the end of their sojourn, many of the nests were getting very shaky and finally when a puff of wind came, they would fall down. The first one or two to fall were torn to pieces quickly, but all of a sudden the birds seemed to lose interest and the rest as they fell were left lying on the ground, thus giving us a chance to examine them.

The Starlings were very fond of bathing and many would come down to our little bird bath to drink and bathe. In the early mornings when there had been a heavy dew, they would land in the grass and bathe in the dew, moving off to another spot when they had shaken all the dew from one part.

Sometimes for no apparent reason, all the birds left in the tree would, with one accord, fly away in a flock leaving an unearthly silence. After a couple of minutes they would all circle and come back again, once more squawking and jostling.

Not all the birds nested at the same time, some not starting to build until the first lot had hatched. Despite this they all seemed to be ready at the same time to fly away. For some time before migrating the birds would roost in the tree at night, but during the day, old and young alike would



**SHINING STARLINGS (Aplonis Metallica) — (Continued)**

leave in the early morning and there was blessed silence until about an hour before dusk when they would all arrive back again. They finally left about the end of April.

Before leaving most of the nests that had not fallen, about three quarters of them, were deliberately pulled down by the birds. It seemed to be a sort of game with them.

At the beginning of August 1961 a small flock of about 5 birds arrived back in the tree. Gradually this advance guard began to build up until there was about 20—30 birds there. Some started to build, but this was too much for the owners of the tree who had had enough by this time. Every effort was made to discourage the birds—at least £1 worth of crackers were let off under the tree, but all that happened was that the birds flew off, circled once and arrived back again. A string was tied to the branch and every time the birds lighted, it was pulled and they were dislodged. This also failed to discourage them. At last a greater part of the tree was cut down and so the birds just congregated on the uncut portion. Finally the tree was very severely lopped with not a leaf left, and this at last sent the starlings away—to settle in a Poinciana tree in front of the house! They do not seem to be building there, though they are much in evidence and the flock seems to be building up. Where they will eventually build is anyones guess—but we do know it won't be in the Samanea Saman next door!

**Note.** Since writing the above paragraphs, the Starlings found another Samanea Saman tree just up the road and seemed quite happy to settle there and rear their young.

M.L.Cassels.

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# THE NORTH QUEENSLAND NATURALIST



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Founder Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**GENERAL MEETING** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** excursion usually fourth Sunday.

**VISITORS** are welcome, especially members of Australian and Overseas Clubs and Societies.

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**Treasurer's Address** — 40 English Street, Cairns, N.Q.

## The Rough Scaled Snake.

(TROPIDECHIS CARINATUS.)

A 36 inch specimen of *Tropidechis carinatus* was picked up by the author on the road near Mt. Molloy, Nth. Queensland. This in itself would not be of any interest if it were not for the fact that this is over 1000 miles from the previously known habitat of this species. The known area where this species was previously known was the Clarence River district of New South Wales and northwards to just inside the South Queensland border. A couple of years ago a head of one was sent into the Cairns Ambulance for identification and this was sent down to the Australian Museum, Sydney where it was identified as *Tropidechis carinatus*, since this however Mr. Lloyd Staunton, Herpetologist of Atherton has captured one on the Atherton Tableland. This is all very interesting and shows that this particular species has a much wider distribution than was originally thought. This is a very poisonous snake and a specimen of this species bit and killed a man in Sydney in two minutes a couple of years ago. This snake could very easily be mistaken by the amateur for one of the harmless fresh water snakes like *Enhydris pictata*, *Myron richardsoni*, or *Fordonia leucobalia*, or also the poisonous Tiger Snake *Notechis scutatus* of which it is very similar. For those who are not familiar with the species a description of the one found near Mt. Molloy is as follows.

**COLOURATION.** Olive Green to Brown above with approximately 60 dark cross bands, these crossbands becoming irregular towards the tail and terminating before the tail, there being no crossbands on the tail itself. The Ventral scales are white with iridescent mother of pearl sheen, infra labials white, supra labials Olive Green to Brown.

**DENTITION.** Fangs 5 mm in length with an interfang measurement of 8 mm.

**SCALATION.** There are 23 scales around the body, 177 Ventral scales, 53 Sub Caudel scales, all being single, Anal scale single. The Dorsal scales are keeled. Scalation 4 centimetres posterior to the centre of the eye is also 23. Rostral scale  $2\frac{1}{2}$  times as long as broad, visible from above, Internasals half the width of prefrontals, Nasal scale three times as long as wide, Preoculars one being in contact with 2nd and 3rd Supra labials, Frontal twice as long as wide, Parential  $1\frac{1}{2}$  times as wide and  $1\frac{1}{2}$  times as long as the Frontal shield, Postoculars two, one being in contact with the 4th and 5th Supra labials, both being in contact with the Temporal scales, Temporal Scales three times as long as wide, Supra labials number 6 the first and second being in contact with the nasal and the third and fourth being in contact with the eye, the 5th and 6th being the largest. The Infra labials number 6 of which the 4th and 5th are the largest. The Prefrontals are twice as long as wide—Diameter of the eye  $3\frac{1}{2}$  mm.

**REMARKS.** Tail short being 14mm in length without any crossbands. Head distinct from neck, with slight canthus rostrali. I would be very grateful to receive further specimens alive or dead of this Species from North Queensland areas, these could be sent to me to 271 Lake Street, Cairns and would be highly appreciated.

VINCENT M. REILLY,

P.O. Box 136, Cairns.



## LYMANTRIA LUNATA STOLL

Family lymantriidae Tussock Moth.

By E. C. CORBET.

These moths invaded Cairns in plague proportions during the early part of August 1962, so much so that they were a real embarrassment for several days, depositing their eggs over the illuminated windows in the business portion of the town inside and outside the Hotels, Accommodation Houses and Private Homes. Some of the electric light standards looked white at the top, gradually vignetting to a mottled grey towards the bottom.

For a time it was thought that the ornamental trees and garden plots in the streets would suffer from the resultant caterpillars, for they too got their full quota of eggs but fortunately this did not eventuate, as none of the trees or shrubs proved to be the food plant and the young larvae died within a few days. The eggs on the electric light standards and wherever possible were destroyed by spraying with power kerosene, but the ones on the shop fronts and homes had to be removed with the scrubbing brush.

I collected quite a number of larvae in different Jars beside having cardboard boxes containing egg masses and although I had leaves from every tree and shrub in the vicinity in the jars with new leaves every morning the larvae were dying.

In one cardboard box in which I had placed a female moth for further study, I discovered she had discharged her eggs and died on completion of the operation, the body appearing to be glued to the egg mass and later it was surprising to see the larvae, on hatching, immediately start devouring the egg cases and then the moth itself. This kept them going for several days.

It was about this time that I noticed a Mango Tree (*mangifera indica*) in my own back yard covered with caterpillars of all sizes and not a blemish on any of the leaves, on further search it was discovered that they were living on the flower sprays and the newly formed fruits. The trouble was over as far as feeding the larvae in the jars was concerned.

The eggs are small with a pearl like sheen and are deposited in a hard mass encased in fluff which appears to come from the body of the moth and the incubation period is 14 days. On hatching, the young larvae fasten a very fine silken thread to that part of the tree they are on and drop into midair where they keep on dropping to the ground, or the wind swings them and they cling to any obstacle they touch on the way down. This thread is typical of these caterpillars. A friend of mine was amazed to see countless thousands of them dangling in midair from the branches of the Mangrove Trees along the foreshores.

Quite a large percentage of the moths died on completion of the egg laying, being cemented by a seemingly glutinous substance combined with the mass of fine hairs surrounding the abdomen, apparently the moth being too weak to break free from the egg mass.

The caterpillars, if domiciled in their food tree are night feeders, remaining in the food area during darkness and leaving just before daylight. In the day time they can be seen resting all round the tree trunk and along the larger branches. Their colouration blends perfectly with the colour of the bark, grey with whitish patches.

Lymantria lunata Stoll — Continued



Female Moth.



## Lymantria lunata Stoll — Continued

From about 7 p.m. to 9 p.m., with the aid of a strong torchlight one can see them, all moving up and outwards towards the flower sprays although the very small larvae would rest on the underside of the leaves close to the flower sprays in the day time.

It was interesting to see the larger of the caterpillars using the thread to drop to the ground and then moving along to the trunk of the tree and up, rather than crawl all the way down from the heights as it got towards daylight. Then again if an impediment was placed underneath whilst they were dropping and the impediment removed when they stopped, they could wind themselves back up the thread by a movement of the head which twisted the thread around a tuft of hairs at the head. It was a slow job but quite affective. If the caterpillars of any size were touched with any object, the thread came into play again and they would drop immediately to the ground or a considerable distance down the trunk of the tree. A sudden or violent movement of a branch has the same effect. On one occasion I was standing underneath a branch when this happened and was immediately covered with the hairy creatures on my head and arms which resulted in quite an itchy rash for a few days. These hairs seem to have a detrimental effect on any foreign caterpillars. I had occasion to place a few *L. lunata* caterpillars in quite a spacious container with some larvae of *Papilio ambrox*, *P. aegaeus* and *P. anactus*. In the morning all the *Papilio* larvae were dead, much to my sorrow.

On the trees more prolifically effected by the tussock caterpillars, there was a large area of the trunk covered with silken web which on normal or sunny days did not seem to have any connection with the caterpillars but on wet or overcast days the web was invariably covered with little clusters of sevens or eights or more caterpillars huddling together.

With the establishing of the Mango as the host tree and knowing that there were several species of the same family in the area I searched and found a *Buchanania mullarii* which was covered with well grown larvae but here they were feeding on the leaves. The tree looked a very sorry sight. Later I found two Tar trees on which were a great number of large larvae and pupae. Here they were eating the flowers. Then a weeping fig (*Ficus bananina*) although not of the same family was playing host to a very large number of caterpillars of all sizes and they were eating the leaves. On placing specimens which had well grown on the leaves of *B. mullarii* and *F. benjaminia* in a container they immediately changed to the flowers of the Mango tree if such were placed in the container.

The exact time lapse between the hatching of the egg and the pupation of the caterpillars was unfortunately impossible to get, as, in the first instance the young larvae were dying off daily until the food tree was found and the larvae on the tree when found, were fairly well advanced but it would certainly be a good two months. The colour was constant in some right through growth, others varied to much darker whilst others again changed to considerably lighter as they developed.

The female moths in general hatched from the larger pupae whilst the male came from the smaller pupae but there again the caterpillars were pupating from about 1½" to 2½" so that it was impossible to nominate a male or a female from the size of the pupae.

On emerging from the pupae the female is whitish and the male almost

## Lymantria lunata Stoll — Continued



Young Caterpillars Huddling on Web.



*Lymantria lunata* Stoll — Continued



Caterpillar, Natural Colour before changing to Black.

## Lymantria lunata Stoll — Continued

black, this however in the case of the male soon changes to lighter streaks in the wings according to the amount of activity displayed.

It was really amazing to note the similarity of this moth to that of a butterfly, the colours and beauty of form is very striking.

On watching the emergence from the pupae of the first male I could not help thinking what a totally different specimen he was in every way from the female, smaller, darker, great feathery antennae and the magnificent eyes, like two glowing red hot coals, they were the most strikingly noticeable as he was emerging into his true form, these were the thoughts running through my mind but following is the correct description of the male *lunata*.

**Body length** 21-22 m.m. **Abdomen** gradually tapered, abdomen diameter 5 m.m. **Thorax** diameter 8-9 m.m. **Wing spread** 60 m.m. **Antennae**, light brown doubly pectinate 7-8 m.m. long, 2 m.m. broad. **Head** small brownish black.

**Colour** Dorsal, reddish orange on abdomen, greyish black on Thorax, Ventral, greyish brown on abdomen, reddish on Thorax.

**Fore Wings**, dorsal surface light grey with two blurred dark bars, ventral surface light grey. **Hind wings**, light grey posteriorly slightly darker on anterior half. **Frenulum** single spined. **Body and legs** densely pubescent, tips of tarsi red.

Notes on larvae collected from *Buchanania* 18/9/1962. Larvae about half grown, most had pupated by 11/10/1962, average time from collecting larvae to moth emerging 34 days, moths laid within two days, max. Temp. 100° F. Min. Temp. 58° F. R.H. 9 a.m. 38%. Eggs took 14 days to hatch average daily Max. Temp 95° F. Average Min. Temp. 59° F. Average daily R.H. 9 a.m. 49%.

I feel that the possibility of a follow-on plague, as the aftermarth of this one has gradually appeared more and more remote.

There was definitely an absence of their food plant as far as Cairns was concerned, in consequence the mortality rate of the larvae was enormous, both in the early stages from lack of food and again later just before the general pupation stage, for the same reason, the food ran out.

Thousands and thousands of the well grown caterpillars left the trees, traversed the 50 to 60 yards of sand and grass to the backs of the homes (in my particular centre of observation) where they covered the external walls, then inside and over the furniture looking for food. They had to be forcibly destroyed. Then again, the death rate from their natural enemies was very high both from the fly and the assassin bugs. The bulk of the caterpillars which reached the pupa stage whilst the food supply lasted, seemed to have been parasitized, as witness most of the few cases I found hanging on the trees were empty.

At the first appearance of this moth in Cairns, there was same considerable confusion as to its real identity and I feel sure that if I quote from a portion of a letter I received from Mr. A. Brimblecome of the Department of Agriculture and Stock, Brisbane, it will tend to illuminate some of the confusion which might still exist. "Quote" When the *Lymantriid* moth appeared in large numbers in North Queensland we received specimens from several sources.

As it was not named in our collection we forwarded material to the Commonwealth Institute of Entomology in London and were advised that the name is *Lymantria lunata*, Stoll.



## Lymantria lunata Stoll — Continued

In the meantime various people in Australia came forward with the name *Lymantria diversa* Turner.

Advice was then sought from the Commonwealth Institute concerning the validity of the two names.

The Institute has made a close comparison of the two species including a study of the genitalia and the decision is that *L. diversa* is a synonym of *L. lunata*.

The species occurs through New Guinea to India.



### In an Edge Hill Garden

During the first part of July, the red bottlebrush (*Calistemon*) and the white (swamp ti-tree?) in our garden were flowering side by side, and were alive with birds that came and went throughout the day. For about an hour one early morning I watched the breakfast merry-go-round of yellow, brown, and dusky honeyeaters, friar birds and drongos. Possibly another variety of small honeyeater was there also, like, but a shade larger than, the brown; but as none of them remained still and in view for a minute, I could not be sure.

The birds seemed generally to prefer the red flowers, flitting or hopping actively from brush to brush; but when chased from these the white were a good alternative. And chasings were rife. Of the little honeyeaters, browns chased browns, four or five of them in a wild figure-of-eight around the two trees; a pair of the tiny dark brown dusks dashed about at intervals; while the bigger yellows, cheery "bush canaries", chased both these and each other as well.

Contrary to its appearance and reputation, the drongo was not being aggressive and it was (or appeared to be) seeking nectar, applying its thick strong beak to individual florets along the sprays and swinging clumsily from one to the next, even though it also swooped away once or twice after an insect. Its mate came by and they exchanged a few words, but the mate did not stay.

Then the despot arrived—a Helmeted friar bird. With fierce rustling lunges this character proceeded to drive every other bird out of the red tree. After a few attempted re-entries, the drongo withdrew to another tree nearby, where it sat chirruping to itself in much the same way as a minah bird does; and soon even the irrepressible yellow honeyeaters were showing some caution in their swift "nuisance" raids.

Presently another pair of friar birds came, settled for a moment in the red tree, then, though they were not challenged, moved to the white. Here they tolerantly shared the blossoms with fidgety little birds, and before long with the drongo too, till presumably home duties called them away.

Almost un-noticed, then, one and another of the little birds were also gone—the doves that had been preening and cooing on the fence, too, and the busy wagtail. (There must surely be a pattern in birds' daily movements, that so often in the garden all the familiar varieties are present at the one time, or all are absent).

Now only the despot was left in undisputed possession of the tree it had claimed. At last a mate joined it there, and they carolled in noisy duet before flying away together. The breakfast session was over.

(Birds identified—some a trifle doubtfully—from "What Bird is That")

K. J. MORRIS.

## Tribute to Club Member.

"To William Hosmer, my companion throughout the Expedition, technical assistant in my own Department in the University of Melbourne, I express my appreciation for his hard work at all times, and pay tribute to his courage in moments of stress. Not once in the seven or eight exacting months of grueling hard work in the heat and isolation of the desert, did he question a decision or fail to carry out an order".

This acknowledgement, appended to his report on the Bindibu expedition to the desert aborigines of Western Australia by Dr. Donald F. Thomson, O.B.E., Head of the Department of Anthropology, University of Melbourne, to the Royal Geographical Society in London, is high praise indeed.

Some of the Club's older members will remember a blue-jeaned 'teenager, fresh-out from England, who joined the Club some eleven or twelve years ago, and, becoming interested in herpetology, came under the influence and guidance of the late Dr. Flecker.

Little did we think, in those not-so distant days, that Young Bill Hosmer was starting, through the Club, on a career which would bring him to the summit of an exacting and precise profession.

I well remember, on the day he went South to make his way as a naturalist and herpetologist, and later as an anthropologist, interviewing him on behalf of the Australian Broadcasting Commission. Due to mis-timing, the interview took place on the verandah of the old-time "Sunshine Express", and was carried on whilst passengers made themselves comfortable for the long journey ahead.

Bill caused some consternation when, asked whether he was taking any specimens south with him, he replied casually "Only one death-adder",—and produced a container holding the reptile for my inspection.

Youthful ambition, plus expert guidance, and a determination to succeed at his chosen (and apparently unusual) profession, has placed William Hosmer very close to the top. Praise is not lightly bestowed through such a conservative and essentially factual publication as the "Proceedings" of the Royal Geographical Society.

As our Founder will always be "The Old Doc", so will William Hosmer always be "Young Bill" to those who knew him. One feels that the tenacious spirit of dedicated persistency is being carried on by the Doc's protegee, giving an example which Junior Members could well emulate.

J.O.



## Observations on the White Nymph Family Nymphalidae

*Mynes geoffroyi querini* WALLACE 1869.

By J. McLOUGHLAN.

This butterfly is not uncommon in the North of Australia and may be taken in heavy rain forests from Mackay to Cape York.

The general coloration is as follows.

**MALE:** Upperside, white with black margins, broadest at the tip of forewing. Underside varies from white to lusterless black, always with a yellow band near the apex, a scarlet or bright orange spot near centre of margin of forewing and a scarlet streak at the base of the hindwing.

**FEMALE:** As above with broader margins on the upperside, and usually the colours are duller on the underside.

It is difficult to enlarge further on coloration of this butterfly, as the underside of the wings carry a wide range of colours from bright reds and yellows down to the more sombre shades of grey, black and dark green.

The eggs of this beautiful butterfly are laid on the tender new leaves of the large stinging tree of the tropical scrubs.

The larva are dark brown or black in colour, with rows of black spines along the body.

The pupa is brown or black, elongated with short black spines on the dorsal surface of the abdomen. The anterior end has two short projections, with a gold spot behind each one.

I have taken quite a few pupae from different areas in the North, but one point remains uniform in each case. The entire lava population of one stinging tree congregate under one or two leaves to enter their pupal stage. I have found as many as fourteen pupae hanging head down from beneath one leaf. On a tree at Ravenshoe I found eight pupae under one leaf and seven under another on the same tree.

Another interesting point is the selection of the food plant. There may be a dozen or so trees growing in close proximity, but the butterfly selects one, occasionally two trees on which to deposit her eggs. They are the host trees from then on.

I have let a breeding area go for twelve months without revisiting it, and sure enough, the same poor tree is being continually ravaged by the Nymph larva while one growing in perfect health, three feet away has not a caterpillar on it.

I can offer no explanation for this strange preference of one particular tree, unless of course, the leaves of one tree are sweeter than the rest.

## EDITORIAL.

Field Days have been arranged for each month except December, but they are not well attended. It is felt that it is up to the Specialist members to try and make an effort to come to these Field Days so that they can help other members interested in their particular field of interest. Endeavours are made to go to different types of country in order to please all members and it is very disappointing when only a handful of members take advantage of these study days.

A very enjoyable Barbecue was held just before Christmas at the beach home of Mr. and Mrs. Gorton. All members had a very happy time with plenty of Christmas fare to please the palate, films to please the eye and a friendly gossip with friends. The Club would like to express their sincere thanks to Mr. and Mrs. Gorton for making their home available.

Thanks go to various people for books and pamphlets for our Library namely Miss Taylor and the Victorian Museum.

In reading Ian Orrells article on the Orb weaving spider, one point struck the Editor and the Editor would like it cleared up if possible. It was stated that the Spider repaired a hole in her web. Was this actually seen by Ian? I ask because on reading Henri Fabre's "Life of the Spider" he emphatically states that though he purposely damaged webs and watched and also watched other webs that were damaged in the course of their duties, at NO time did he see evidence of the Orb weaving spider having the sense to repair her web. When the web was too tattered for further use, it was cleared away and a new one built. Perhaps Ian you could let us know if you actually saw the web being repaired or just presumed that it was done.

Another parcel of crabs has been received and will be dispatched to the Sydney Museum as soon as possible. We have to thank Mr. C. Lee for these.

It is now time for subscriptions to come in so please, all members who have not already paid, please forward your subs to the Treasurer without delay.

Juniors—I hope you are thinking and watching ready to write up your essays for the Flecker Medallion. It is no good waiting to the last minute to do this, now is the time for observation and collecting notes. Let us see if we can have a few more entries from Junior Club Members.



## Pot - Pourri.

Shortly after I moved into this camp on the spring at Spring Creek, ■ tributary of the Lynd River on the southern central part of Cape York Peninsula, I found a Great Bower Birds bower under some low hanging branches of a black tea tree.

One day in October, whilst doing some washing by the spring I noticed a lot of rubbish in the "banjo" I was using for a tub. Looking up, I saw a mud nest belonging to some Apostle Birds, and sitting on the edge of the nest busily tossing all the grass and fibre lining out on the ground was a Great Bower Bird. Having done this to its satisfaction, it then began to pick soft twigs off the Black Tea Tree and line the nest with them. Suddenly came the chatter of the returning Lousy-jacks. They chased away the Bower Bird, threw out all its workmanship, and began to replace it with their own. This



## Pot - Pourri (Continued)

went on for some days, until both the Bower Birds and the Apostle Birds got tired of the game, deserted the nest in dispute and apparently nested elsewhere.

CHARLIE LEE.

Some years ago a young soldier was travelling out in the bush in pursuance of his duties. He had occasion to stop whilst his Officer was busy and his eyes strayed around the bush till suddenly he espied a large frilled lizard sitting on the branch of a tree. The lizard was busy catching insects for a meal when the soldier noticed something that amused him very much. The lizard would catch a beetle or other tasty morsel, but instead of eating it straight away, he placed it behind the frill much like someone parking a piece of chewing gum behind his ear. This went on for some time and the soldier came to the conclusion that the lizard collected a number of insects, parked them in his frill and then ate them later on at his leisure.

## THE BIRDWING BUTTERFLY.

This beautiful insect belongs to the family PAPILIONIDAE and is represented by 7 different species. In the majority of cases the male is handsomely clothed in green and black. The following colour description may be taken as representing the four races found in Australia.

**MALE:** Upperside, velvet black and brilliant green, with a deep brown sex mark on the forewing. The hindwings are mainly green with a series of black and golden spots. The abdomen is a bright yellow. The underside of the wings is mainly green tinged with gold.

**FEMALE:** Upperside, deep velvet black or in some races dark brown. The underside is similar, with yellow or dull gold markings on the hindwings. Both male and female are bright red at the base of wings.

One striking member of the family is PAPILIO PRIAMUS LINNAEUS. This butterfly was found on the Island of Batjan in 1859 by A. R. WALLACE and in his book "THE MALAY ARCHIPELAGO" he describes this capture. I quote "The beauty and brilliancy of this insect are indescribable and none but a naturalist can understand the intense excitement I experienced when I at length captured it. On taking it out of my net and opening the glorious wings my heart began to beat violently, the blood rushed to my head, and I felt much more like fainting than I had done when in apprehension of immediate death. I had a headache the rest of the day, so great was the excitement produced by what will appear to most people a very inadequate cause" Unquote. In this race, the green on the upper surface of the wings is replaced by brilliant orange, thus Mr. Wallace's excitement.

Another remarkable race is PAPILIO PRIAMUS URVILLIANUS from the Solomon Islands. Dark blue replaces the green in the male and the affect is very admirable indeed. I have one of these beautiful butterflies and its beauty really defies description.

**LIFE HISTORY:** Egg, large and round, laid individually on the vine ARISTOLOCHIA. The larvae are grey-black in colour, some times with a tinge of deep blue. They have a number of long and pointed spines, mainly shiny black in colour on their backs. One spine either side near the centre of the body is usually pink or white.

The pupa is large and multi-coloured and is supported by a heavy cremaster. This life history may be taken as general for all PRIAMUS.

These butterflies are not only brilliant in colour, but rank among the worlds largest. The female of a race found in New Guinea has a wing span of over 12". I bred a female PAPILIO PRIAMUS EUPHORION with a wing span of 9½".

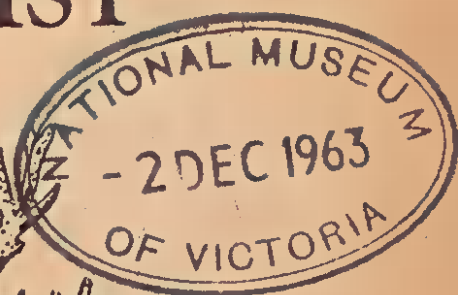
J. McLOUGHLIN.

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# THE NORTH QUEENSLAND NATURALIST



CAIRNS

## Journal of NORTH QUEENSLAND NATURALIST CLUB

ADDRESS — Box 991, P.O., CAIRNS  
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"Each author is responsible for the opinions and facts expressed in his or her article".

## NORTH QUEENSLAND NATURALISTS' CLUB

Founder Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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## EDITORIAL.

Well, once more it is the end of our year and the Editors must apologise for not putting out more Journals. However, it is still hard to get suitable articles and unless members can help by sending in material, it will probably continue to be erratic in appearance.

We much regret to announce the death of three of our members during the last few months. The first was Mr. George Atkinson, a Town Member for many years. He had been in ill health for some months and we were very sorry to lose him. Mr. Tom Elliott of Atherton was our second loss and though he was not known to many of the members personally, several members travelling to Atherton had made his acquaintance. Young Patrick Collins, a junior member of only 10 years old was the last loss and one which shocked all the members. He had not been a member for long but had already endeared himself to many on the Club Field days with his large lumps of steak burned to a cinder but eaten with the relish of youth.

Our sincere sympathies go out to the families of all these members.

Once more it is subscription time. We do ask all Country members to please forward their subscriptions to the Treasurer as soon as possible. I regret to say that quite a number have not yet paid their 1963 dues and we would ask them to do so as it is quite impossible for us to run the Club and publish a journal of this calibre without funds. Printing costs are high as are postage rates and if members wish to still receive their journals they must be prepared to forward the money to enable us to print and post them.

The Annual General Meeting is now over and it will be noticed that there are quite a few changes in Office Bearers. The members wish to thank all those who have done such sterling service for the Club and have now stepped down from office. In particular we would give our thanks to Mr. A. A. Read who has been our President for 14 years but now feels it is time for him to take a well earned rest and let some of the younger members hold the reins.

Once more we congratulate Ian Orrell on winning the Flecker Memorial Medallion for an essay on Natural History. The essay appears elsewhere in this journal and I am sure members will agree that it is a very well written and well thought out essay and thoroughly deserving the award. This is Ians third year of winning. Well done Ian.

—O—O—

### POT POURRI.

#### Senseless Slaughter of Currawongs.

These birds have become so tame here at Tinaroo that they have become the victims of the most senseless slaughter imaginable — and this in a Sanctuary right in the centre of the Village. They certainly do eat a little fruit, but they also eat a lot of vermin. I do not know where they breed but they leave here about December and return in June. About 70 came this time and what a reception they received! I think there are 14 left, some crippled and the rest scared out of their wits.

## Observations of the Saint Andrews Cross Spider

24/2/61. Brought spider inside from the bush.

30/3/61. 6 a.m., Mrs. Spider had begun spinning an egg sac. It is a small round light brown sac.

8 a.m. Spider has now finished spinning sac which is now about 1 inch long and has a greenish appearance. Have given her a small fly and she has spun it in a web.

7/4/61. Another egg sac has been spun.

13/4/61. This morning Mrs. Spider was busy spinning her cross. The two top ones were made first.

14/4/61. The Two bottom parts were finished.

16/4/61. Another egg sac is finished. Another cross has disappeared.

19/4/61. First egg sac has hatched out. There are hundreds of little spiders bunched together (it is raining). About 20 days to hatch.

21/4/61. Another cross has been made.

22/4/61. A small male spider is dead in the web.

26/4/61. Another egg sac and once again the cross has disappeared.

27/4/61. Second egg sac has hatched (20 days) and raining.

8/5/61. Third egg sac has hatched (22 days) sunny day.

20/5/61. Fourth sac hatched (24 days) cloudy day.

12/6/61. My spider is dead.

The spiderlings stay huddled together for about 3 days after hatching, then overnight they disappear. One day I placed another female spider on the web and there was a fight and the intruder was very glad to leave. I always find that the S.A.C. spider drops downwards to get away from danger. I have noticed that it takes anything from 4 days to 13 days for the female to spin her first sac after she has mated.

NOTE. Some times only part of the cross disappears, when an egg sac is spun. I am beginning to think that this is used in the first stages of the spinning. Then again eggs have been laid without any sign of a cross being made.

LYN CORBET, Junior Member.



## "Notes on the Eastern Whip-bird Psophodes Olivaceus"

The Eastern Whip-bird is a shy and elusive bird which frequents rain forest undercover and other areas where suitable dense cover is available. This type of habitat and the elusive habits of the species makes detailed study of the species difficult. Most people have heard the remarkable call, many have had brief glimpses of the bird, fewer still have been lucky enough to study the bird in its natural surroundings. In my wanderings through the tropical northern rain forests, I have seen quite a lot of this species often from close quarters. For many decades considerable controversy has occurred as to whether one or two birds complete the remarkable call. My experience suggests the call can be completed by one bird, but often two birds (a pair) indulge in the practice. One bird delivering the long drawn out whistle and the other bird completing the swish or crack. Recently while standing in the centre of a secluded jungle track, a pair of Whip-birds were heard Calling from the dense cover nearby. Making some squeaky calls, I soon lured the pair to a position where they were visible to me. Very soon one bird crossed the track feeding on insects in the low bushes. I kept both birds under observation for some time, the bird who had not crossed the track uttered the long drawn out call or whistle, immediately the other feeding bird stopped feeding, perched erect, raised the erectile crest and completed the final crack. With my binoculars I was able to see that both birds throats swelled before they delivered the call. Whip-birds also utter other calls, usually when feeding or if disturbed. These calls comprise many clucks and gurgling notes, sometimes mistaken by observers not well acquainted with the species who confuse these calls with the remarkable notes of Logrunners (Chowchillas).

Whip-birds are at times ventriloquial and have the ability to throw the voice at least sixty feet from where the call was delivered. Whip-birds feed mainly on the jungle floor quietly turning over leaves and debris and capturing the insects disturbed. They also feed among the foliage of low bushes and at times in taller saplings to a height of over twenty feet from ground level. They build a cup shaped nest of twigs and rootlets situated near the jungle floor, the usual clutch comprising two pale blue eggs.

The courtship display is extremely interesting and it is then that the birds seem to become tamer and are often observed in more open situations in the jungle. Another species of Whip-bird is known to frequent South West Australia and recently a colony was located in the North West of Victoria. This species is very rare and does not possess a Whiplike Call but is said to utter a harsh song.

J. A. BRAVERY.

### VALE GEORGE ATKINSON.

The Clubs Journal was just off the Press, containing the name of "George" on the Advisory Panel of Specialists, when on the 23rd May, 1963, he ceased membership.

George Handly Atkinson as a native of Cairns, just failed to reach his 60th Birthday, and was to the Club an old stalwart, who attended many of the Clubs Field Days, and was that much happier, if the venue was to a field yielding Mineral specimens.

Mineralogy was his first interest, closely followed by photography and botany in that order. Perhaps a little difficult and impatient at times, there still was a lode of kindness and loyalty beneath the stratum of his composite, if one persisted in fossicking for the vein of true worth that existed.

The Club will certainly miss George, as will the Author who knew him, and shared in his confidences.

S.D.

## WILDFLOWERING UNDER MT. CROLL

KATHLEEN McARTHUR.

There are two good seasons for wildflowers in the Cape York Peninsula, one after the 'wet' and the other after the early summer storms. My visit to Coen was in June (1960), a time normally too late, but because three inches of rain had fallen a few weeks earlier the ground flowers were plentiful and the trees in bloom were refreshed.

On the many drives I had in the district, nowhere did there seem to be such an abundance of flowering, nor so many species in bloom as on the Mt. Croll Aerodrome Reserve. There were more than enough flowers to keep me painting hard for three weeks. It was sad to leave so many because of lack of time. However, it was in this month of the year, in 1770 that Joseph Banks and Daniel Solander did their botanising in the vicinity of the Endeavour River approximately a hundred and fifty miles away. Many of the flowers I saw near Coen are in the collection of drawings made by Sydney Parkinson, their botanical artist. It was from these that the volumes entitled "ILLUSTRATIONS of AUSTRALIAN PLANTS COLLECTED in 1770 during CAPTAIN COOK'S VOYAGE round the WORLD in H.M.S. ENDEAVOUR by Sir Joseph Banks and Dr. Daniel Solander", were made. It was published as late as 1905.

There is a set of these volumes in the Government Herbarium Library in Brisbane. Looking at them there, I was able to recognise many plants seen yet not drawn. Amongst these was the wonderful night-blooming flower *CAPPARIS LUCIDA* syn. *THYLACIUM LUCIDUM*. When I first saw these flowers on a tree near the Peach River I thought they were white cockatoos, and then, when I realised they were not big enough I decided they were ants' nests. Curiosity kept me advancing to the tree to find this extremely beautiful flower of pure white.

Another flower in Banks' collection is the orange brush-like *GREVILLEA PTERIDIFOLIA*. It is now being successfully cultivated by members of the Brisbane branch of the Society for Growing Australian Plants.

The notorious Finger Cherry (*RHODOMYRTUS MACROCARPA*), Wannaki to the aborigines, was flowering. It has a simple beauty with its firm white petals and ring of yellow stamens. The fruit of this tree, if eaten, can send people blind. The aborigines know just when to eat it.

There were Acacias in all shades of yellow and Melaleucas in white, cream and pale green. No red bottlebrushes were out. Two trees with brilliant yellow flowers were *DILLENIA ALATA*, Koppakai to the aborigines, and *COCHLOSPERMUM GILLIVRAEI*, the Kapok or Cotton Tree. Both have red stamens and are most satisfying subjects for the artist. Mrs. Ellis Rowan's painting of the former is in *THE COMPREHENSIVE CATALOGUE of QUEENSLAND PLANTS* by Bailey, as *WORMIA ALATA*, a classification not now used. The Kapok tree, which blooms after dropping its leaves is found also in the Kimberley district of West Australia, so possibly is right through North Australia. It is not the tree from which commercial kapok is taken.

The only two species of Hibiscus to bloom while I was there were the white and a low-growing pink. As I did not paint either, I did not have them identified. The white, commonly called Wild Rosella, was possibly *H. radiatus*. The early settlers of the gold rush days when out of yeast and potatoes from which they could make a bread yeast, used the leaves of this hibiscus to leaven their bread.

In the lowest areas, where damp conditions prevail longest, the number and colours of small plants made a most charming display. I painted three



# WILD FLOWERING UNDER MT. CROLL (Continued)



Kathleen M. Arntson  
Mt. Croll, 1960

## WILD FLOWERING UNDER MT. CROLL (Continued)

different Trigger Plants (*STYLIDIUM FLOODII*, *S. ULIGINOSUM* and *S. SCHIZANTHUM*), the first deep pink, the second pale pink and the third yellow. There was a small bright blue *Lobelia* (*L. DIOICA*), the charming blue *EVOLVULUS ALSINOIDES*, and that blue pincushion flower *BORRERIA LAEVIGATA* which would be a great attraction in any garden plot. There was a fascinating yellow Bladderwort, (*UTRICULARIS FLAVA*), numerous yellow peas, including the shrub *BOSSIAEA ARMITTII*, a more handsome species than the *Bossea* which grows in Caloundra. Several of the insect-eating Sundews added interest, the one drawn was *BYBLIS LINIFLORA*, a bright pink flower. The stiff, papery Copper Plant was everywhere, its colour faded with age but when fresh was a mauvish-pink. As usual, the white flowers were dominant. There was a handsome *BUCHNERA* species, two different forms of Mitrewort (*MITRASACME CONNATA*), the humble, little *GOODENIA ARMSTRONGIANA*, the convolvulus-like *POLYMERIA AMBIGUA*, and a star-like flower the botanist did not identify, as well as many others.

Just before I left after three weeks of wonderful wildflowering, there were showers of rain that brought out what my hostess called Pigeon Plant, because they reminded her of Squatter Pigeons. It is a most beautiful species of *Ruellia*, the tuberous roots of which may be used for food. Botanically, it is known as *APORUELLIA ACAULIS*. It is illustrated in *The Comprehensive Catalogue of Queensland Plants*, under *Ruellia acaulis*, an illustration which does not do justice to its exquisite beauty.

There were many more. Some I painted, some I sadly left, hoping, after drinking the waters of the Llanckelly, to return again and record. Wherever one goes in Queensland there are wildflowers. Many of them are unrecorded except as dried specimens in a herbarium and botanical names, and as far as the Peninsula is concerned, many not even collected.

When I was at Kew Gardens, London, last year (1961), the Director of the Australian section told me they had a very incomplete collection from Cape York Peninsula. This is so surprising, for London is where one expects complete records. I was speaking of this at the State Herbarium in Brisbane on my return and was told that State records for the Peninsula are also incomplete. Apparently, there has never been a botanical expedition right through those far-flung areas.



## FOUR INCHES OF EARTH.

The observations for this essay took a day to make while and after the hole was dug. This four inches of top soil would provide a keen naturalist with weeks of study and to the creatures themselves, the hole was their little world.

**Surface Vegetation :** Wiry Buffalo Grass thickly bound the ground, and other plants such as Clover, Star Grass and Thistles struggled for existence. The ground was moderately damp because a sprinkler had been running there some forty-eight hours before.

**Life in this Vegetation and in the Surface Soil.** As I brushed my hand over the grass a few small, green grasshoppers and a brown leaf-hopper flew into the nearby grass. These grasshoppers had left their trade-mark behind, there were small nibbles taken from a number of leaves in the area where they had been feeding. Some small spiders (green, black, brown and orange) were running over the grass looking for food. One had caught a small grasshopper. They ranged in size from about  $1/32$  inch to  $1/8$  inch across the back. The small orange one I examined under a microscope. It was covered with small hairs and was no more than  $1/32$  inch across back.

Small grubs and caterpillars (not identified) were found on the Buffalo Grass and the ground. Three of these were of the looper type caterpillar (green with two yellow stripes down the back) and the other four were plain brown. These grubs and caterpillars ranged from  $1/16$  inch to  $1/8$  inch in length. Some small green snails were climbing on the grass. There were about twenty of them and each was about  $1/8$  inch high. These had right-handed spirals. Hundreds of russet-coloured ants were running over the ground looking for food, but as far as I could see they had been unsuccessful. They had a track running through the area and followed each other in single file in two way traffic. Each was about  $1/12$  inch long and every now and then there was one with larger head and jaws than the rest. These were the soldier ants and were guarding the workers against attack. There were some small insects (which I could not identify) crawling through the grass and ground. They were a light brown and had large feelers for their size. These insects ranged in size from  $1/8$  inch to  $1/4$  inch in length.

A small mole-cricket jumped from the grass and when I tried to catch it, he jumped some more and I didn't have a chance.

**Life in the First Two Inches of Top Soil.** As I dug up the soil I placed each shovelful on an old piece of paper and examined it.

The larva of the Cadelle was digging its way through the soil. It was about  $1\frac{1}{2}$  inches in length, cream in colour, except for the head and tail which were brown. Its head was strong and contained a pair of quite powerful jaws. It had twelve segments to the body and hairs protruded from the sides of its body. The younger larvae are shorter (1 inch) and are nearly black. The adult is a small black beetle which can move with great haste. These (larvae and beetles) were dug up from about  $1/2$  inch from the surface. The beetle is about  $1\frac{1}{2}$  inch long.

\* A Text Book : Australian Insects says that this species infest grain, but these didn't. The next shovel-full contained a Wolf Spider which darted from the soil into the nearby grass. As I crushed up this lump of dirt I noticed some-more small green snails, but these were a pale green in colour and when I examined a few under a microscope I found a very small ar-

## FOUR INCHES OF SOIL (Continued)

achnid which seemed to be a parasite as it came from inside a dead shell. It was brown with three dark brown patches and crawled along the microscope slide on its back. It was also strong enough to push the dead shell along the slide and was barely able to be seen with the naked eye. There were about thirty of them in the 2 inch layer.

About six earth worms were in this layer of soil and they were from 1 1/2 inches to 2 1/2 inches long and about 1/16 inch thick. They were a light brown in colour. A couple of Stink Beetles (not correct name; no technical data) were making their way through the dirt and when I touched one it made an unpleasant odour. They were pitch black and 1/4 inch in diameter. A small brown and white beetle (no identification) was on his way and was about a 1/4 inch in diameter. He was shiny and an oval shape. After I had cleared all the dirt from the hole to the depth of 2 inches, I stood back and watched. In a few minutes a lot of small flies came. They were black, brown and green, and they landed in the hole and on the surrounding grass. They were very swift in their movements and very hard to catch. When I waved my hand over the hole, they flew away but quickly returned, because they seemed to like the smell of fresh dirt. These flies were about 1/8 inch in length. A Hover Fly also hovered near whilst looking for prey, but he was even swifter in his movements. Some more of those unidentified insects (See Page 1) were here in the bottom of the hole but burrowed underground so that the small brown ant wouldn't attack. Some small, round, white eggs were found about 1 1/2 inches down. These were about 1/16 inch in diameter. Some very small arachnids were found crawling through the dirt and I examined them under a microscope but could not identify them. They could move quite fast on their stomachs but were useless on their backs. I could only send them to the University of Queensland with the snails and the parasite to be identified.

**Life in the Second Two Inches (2 - 4 inches).** Many more earth worms inhabited this region and they were fatter and longer (2 1/2—3 inches). A thin, white, wire-like worm was found and when I tried to catch it, it resisted. It was about 1 1/2 inches in length and 1/64 inch thick. Another brown and white beetle (already mentioned) was found and it was about 1/8 inch in diameter. I stood back again to watch the hole for a few minutes and the small flies came into the hole, but strangely enough two blow-flies came (one green the other blue.) They landed in the hole. Once again the ants were on the hunt and this time they found a wounded worm. Two of them began the struggle of pulling it up the four inch slope of the hole. On the way many others joined in. As the ants began to tow their victim up the side, it fell back down and they had a second attempt. This time they were successful and when they reached the top there were forty-three ants tugging with all their might. It was towed to their nest, where no doubt they had a well-earned feast. Twenty-hours later I looked at the hole and the ants had built their nests there. The nest consisted of a hole in the ground with a barricade of dirt grains around it.

And so the struggle for existence goes on. The grass struggling against other grass, grubs and grasshoppers; worms against the ant; the hover-fly preying on other insects; and the spider seeking her food. All this struggling is just the 'Balance of Nature'. If there were none, what a queer world it would be?

Submitted by IAN STUART McKENZIE ORRELL, (Aged 14).

P.O. Box 1, Smithfield, via Cairns.

It is regretted that we are unable to reproduce Ian's well executed drawings.



## A VISIT TO MICHAELMAS CAY.

Michaelmas Cay is 27 miles N.E. of Cairns on the Barrier Reef. The launch left Hayles Wharf at 8 a.m. and the three hours passed quickly with its interesting people to talk to, chiefly from the South and Overseas.

A cloud of flying, screaming birds over the green-topped golden white sand was visible from a distance and appeared to be little changed by the presence of man.

As we approached the beach through the ebbing tide, large areas of what looked like black rock were seen; but on moving nearer along the sand they were found to be hundreds of dark brown Noddies, close together, silently facing into the breeze.

Most of the passengers were "Shellers" with a few fishermen who stayed aboard after we were dropped on the island, and as the tide was fast falling leaving a great stretch of reef all round the sand, I had the bird area almost to myself, only an occasional wanderer disturbing the sitting birds.

A coarse grass with clumps of pink flowered Ice Plants and two other low-flowering plants covered the whole flat centre of the island and birds and eggs were everywhere. On the beach edge a few nests of coral and shells had been made but usually a single egg lay just anywhere in shallow depressions.

Three distinct kinds of birds were seen which I believe (What Bird Is That? being my authority) were:—

1. Shiny black and white Sooty Tern whose eggs were unevenly blotched with brown and black.
2. Dark brown birds with black wings and tail tips and greyish top to head which is probably the Greater Noddy, but its single egg was definitely plain without marking, whereas the book says all Noddy's eggs have blotches.
3. This larger bird is probably the Crested Tern, white with silver grey above and black on the head, there were only a few of these birds and I could not trace one to an egg.

If one sat quite still the birds came quite close and I handled several fledgelings who did not seem at all frightened. One hen Noddy perched on my arm when returning, after being disturbed, then dropped down and went to her egg.

The Noddies sat straight onto their egg whilst the Sooty Terns usually beaked their egg then lowered their bodies and wriggled over it.

According to Cayley this is not the breeding time of year for any of these birds.

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—O-O-O—

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# THE NORTH QUEENSLAND NATURALIST



CAIRNS

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"Each author is responsible for the opinions and facts expressed in his or her article".

## NORTH QUEENSLAND NATURALISTS' CLUB

Founder Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**GENERAL MEETING** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** excursion Sunday prior to meeting.

**VISITORS** are welcome, especially members of Australian and Overseas Clubs and Societies.

**LIBRARY** open each Club Night and by arrangement with Librarian.

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**Subscriptions (Due September 30) :**

City and Suburban Members, £1/5/-.

Country Members. 15/-.

Junior Members, 5/-.



## ... SOUTHERN VOYAGE ...

Apart from the fall in temperature, which was now well below freezing point, the first real indication of our proximity to the great Antarctic Continent, was the presence of scattered ice floes.

These small floes, heavily eroded, were the remnants of the huge ice sheet which covered the sea during the previous winter and spring and were now rapidly ablating in the summer sun as they drifted northwards. Each year this field of winter sea-ice, up to six feet in thickness and stretching for about 400 miles from the shore, breaks up under the influence of the summer weather, the wind and tide, to form in some cases large areas of scattered floes and in other cases vast fields of compressed pack ice. The floes which drift northwards ablate away but much of the pack becomes refrozen into the sea-ice of the following winter.

At first this vast expanse of ice flecked ocean, cold and silent, appeared devoid of all life but as we ploughed further southwards, small groups of Adelie Penguins were seen, their black plumage standing out clearly against the snow covered platforms of floating ice. Only those close to the ship, their curiosity overcome by fear, dived into the sea, while those a hundred or more yards away stood their ground, even when our bow wave sent their floating islands bobbing up and down.

Occasionally a seal was seen basking on a floe, and awakened by our approach would gaze incredulously at the red monster gliding past and then with a mighty heave, dive for the safety of the ocean.

We had seen our first berg at Latitude 55.9 degrees south, wallowing in the heavy swell and sending great plumes of spray high into the air. These were small bergs at first, compared to the monsters, several miles in length, which we encountered further south, making it necessary to change course frequently in order to avoid them.

Sometimes we sailed quite close to one, it's ponderous blue and white bulk gleaming in the weak sunlight, silent and menacing.

As they drift northwards into warmer and rougher water the bergs ablate and disintegrate fairly rapidly and seldom do they endanger shipping as they do in the northern hemisphere where ocean currents carry them southwards into the busy trade routes. Here we were deliberately penetrating their domain where an efficient radar, careful navigation and an ever watchful eye were required twenty four hours a day to ensure our safety.

A spectacular sight indeed is a huge berg, miles in length and hundreds of feet high, ploughing through the pack ice and shattering it to fragments, powered by the unseen force of an ocean current against it's under-water bulk.

As the bergs became more numerous and the ice pack thicker, the Captain, from his eyrie on the foremast, guided the ship through the clear water "leads", changing course often and sometimes going astern to charge forward again with increased power when the "leads" closed in.

Ice floes twenty and thirty feet across were pushed aside, their blue-white edges red stained from the ship's paint work, while many of the smaller ones rolled completely over exposing their honeycombed bases of rotten ice, tinted a salmon pink from algae.

As with geographical features on land, ice bergs have several distinctive forms and are typed according to their shapes. The commonest type is the Tabular berg, others noted falling into the classification of Valley or Drydock, Pinnacled, Arched and Domed.

Truely, nature's ice sculpture was beautiful to behold.

Also the various distinctive forms of sea-ice were noted. Rafted Ice, where one floe had been pushed upwards to partly overlap another, Flat, Hummocky and Pancake Ice, Frazil where the water was thick with tiny ice crystals, Brash which consisted of thickly packed broken pieces and Rotten Ice which was dark and water saturated.

In accordance with the scientific purpose of our mission, the presence of all marine and bird life was noted and special logs were kept for this purpose.



With the assistance of many amateur bird watchers our ornithologist was kept busy identifying and recording the sightings of each species.

Albatrosses were our constant companions, one or two Wandering Albatrosses remaining in the vicinity of the ship until we were well into the pack ice.

The Albatross family (Diomedea) includes some of the largest flying birds, the Wandering and Royal both having wing spans of about twelve feet with a recorded maximum of seventeen feet.

Although each individual species is not easily recognised by the amateur, the family in general is characterised by their long narrow wings, black backs and tails, large hooked beaks and their gliding method of flight. Of the thirteen known species, nine plus four sub-species inhabit the Southern Ocean.

In the cold world of sea ice and berg we saw many snow petrels the first sighting being made at 61.0 degrees south. This beautiful snow white bird about the size of a pigeon which it closely resembles was the subject of a detailed study during the nesting season at Mawson Base.

Skuas, merciless predators of the southern waters were fairly numerous.

Other species of petrel which comprise a very large family of sea birds include the Giant Petrel which is the size of an Albatross and the tiny Storm Petrel which is smaller than a swallow. Many hundreds of these fast flying tiny birds were seen.

Of the several species of penguin which inhabit the Antarctic and sub-Antarctic regions the Adelies were the only ones noted during the southern voyage. These cheeky, comical little fellows in keeping with the attitude of other kinds of wild life, have little fear of man which renders them excellent subjects for close study.

Although their progress on land is somewhat slow and rather ungainly, their swimming prowess is truly remarkable. When "hove to" in some open water close to the mainland we witnessed a display of "Porpoising" by thousands of these birds. As the name suggests this consists of breaking water in a series of dives executed at high speed and with thousands of birds in close formation engaged in this sport, the water is whipped up as though by a large school of fish. Seen from the deck of the ship in clear water the Adelies underwater "flight" is almost too fast for the eye to follow.

A school of six porpoises was seen at 55.0 degrees south but it was not until we had reached a point 61 degrees 42 minutes south and 99 degrees 22 minutes east that our first whale sightings were made. Three whales of an unidentified species were seen at a distance of a mile or so and from this point onwards, whale sightings were an almost everyday occurrence.

Blue whales, characterised by their single vapour plume when "blowing" were possibly the commonest of the larger species and the smaller Sei Whales with their characteristic tall, shark like dorsal fin were often seen. They were possibly in the vicinity of twenty five feet in length, not a great deal larger than the shark finned Killers which were seen right alongside the ship in schools of half a dozen or so when we were anchored in calm off-shore water.

Unlike the plankton-eating Blue and Humpback whales the predatory Killers prey on the larger forms of life including their own cousins, the larger whales which they viciously attack in order to obtain the choicest morsel, the tongue. Seals and penguins are also main items of the Killer's menu.

A killer whale in order to catch a seal will dislodge it from an ice floe and they have been known to break through a large sheet of sea-ice to capture a basking seal which they can see through the translucent ice above. Men have had narrow escapes when attacked in this manner.

Our voyage of fourteen days across the storm tossed Southern Ocean, the "roughest ocean in the World" and through the icy berg strewn Antarctic seas, brought us to the gleaming ice cliffs of the Antarctic Continent near the Russian Base of Mirny where we landed.

G. MASLEN.



## SIPHONOPHORES

## PART 2 OF A SERIES

(Part 1 of this series, dealing with siphonophores in general, and *Physalia* in particular, appeared in The North Queensland Naturalist, Vol. 30, No. 131.)

All Siphonophora are colonial, and characteristically show an admixture of medusoid and polypoid members (zooids), some of which are greatly modified to serve specific functions. Broadly speaking, zooids of medusoid origin are concerned with locomotion and reproduction, while polypoidal derivatives protect the colony and attend to the capture and ingestion of food. For each type of colony, the basic pattern of organisation remains unchanged from generation to generation — in other words, each colony functions as an entity, and reproduces as a distinctive and recognisable formation.

Another characteristic of siphonophores is that they are adapted to move within their watery environment. Those belonging to the suborder Calycophora rely entirely on "swimming bells" (nectophores) for propulsion. The remainder, grouped as the suborder Physophoridae, have some form of apical float, which provides bouyancy.

The Physophoridae are divisible into three groups:—

1. Physonectae (e.g. *Agalma*, *Nectalia*), which have a small closed bouyancy chamber, usually augmented by swimming bells.
2. Rhizophysaliae, having a large hollow float and no swimming bells (*Physalia*, illustrated in Part 1 of this series, is representative of this group), and
3. Chondrophorae, in which the air chambers are modified into flattened discs, and stiffened by chitinous material (e.g. *Porpita* and *Velella*).

## VELELLA.

*Velella* (sometimes called "Purple Sail" or "By the Wind Sailor") is common in warm seas, and like *Physalia*, may form dense fleets in mid-ocean, or be stranded in thousands by onshore winds. The name means "little sail", referring to the most obvious and distinctive feature of this siphonophore, illustrated in Figure 1. The curved flexible sail forms an effective aerodynamic surface, exerting a propulsive force along the length of the float. I have observed *Velella* sailing at over two knots in a barely perceptible breeze. As the marginal tentacles are capable of co-ordinated movement, and must exert considerable underwater resistance, the colony may have some degree of control over its rate of progress, and its course relative to the wind. In addition, the free margin of the sail appears to contain muscle fibres, and the contraction of these could alter the curvature, and therefore the efficiency, of the sail.

All exposed surfaces of *Velella* are water-repellant, quickly shedding spray and splash. This ability, together with the broad beam, and the pliability of the skirting membrane, makes *Velella* a very dry and seaworthy little ship.

On the underside of the disc, at its mid-point, is a large polypoidal zooid, the only member of the colony exclusively devoted to the ingestion of food. The large mouth of this central gastrozooid (Figure 2, A) opens freely into a distensible tube, running lengthwise beneath the dark central mass ("liver"). Around this T-shaped structure, the main "mouth" and "stomach" of the colony, is arrayed a series of secondary gastrozooids (Figure 2, C), provided with functional mouths, and sizable cavities; but these also give rise, near their bases, to clumps of reproductive members (Figure 2, G), and for this reason these polypoidal derivatives are usually referred to as gonozooids. Towards the periphery, the gonozooids show smaller cavities and greater length (Figure 2, F), and the mouth openings decrease in size. The free ends of all these polyps bear clumps of nematocysts, and the longer polyps near the periphery are probably mainly protective in function.

Figure 1

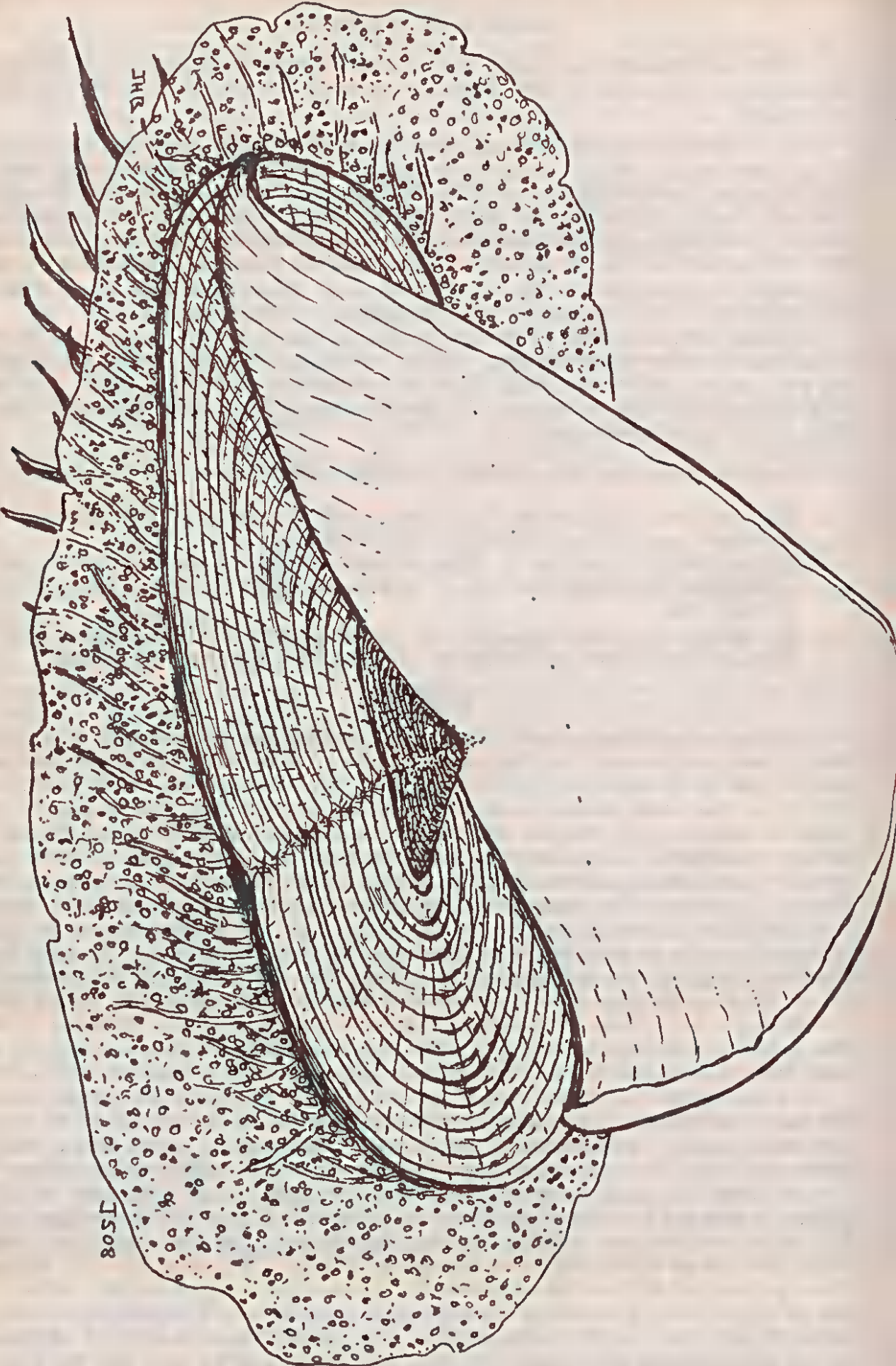
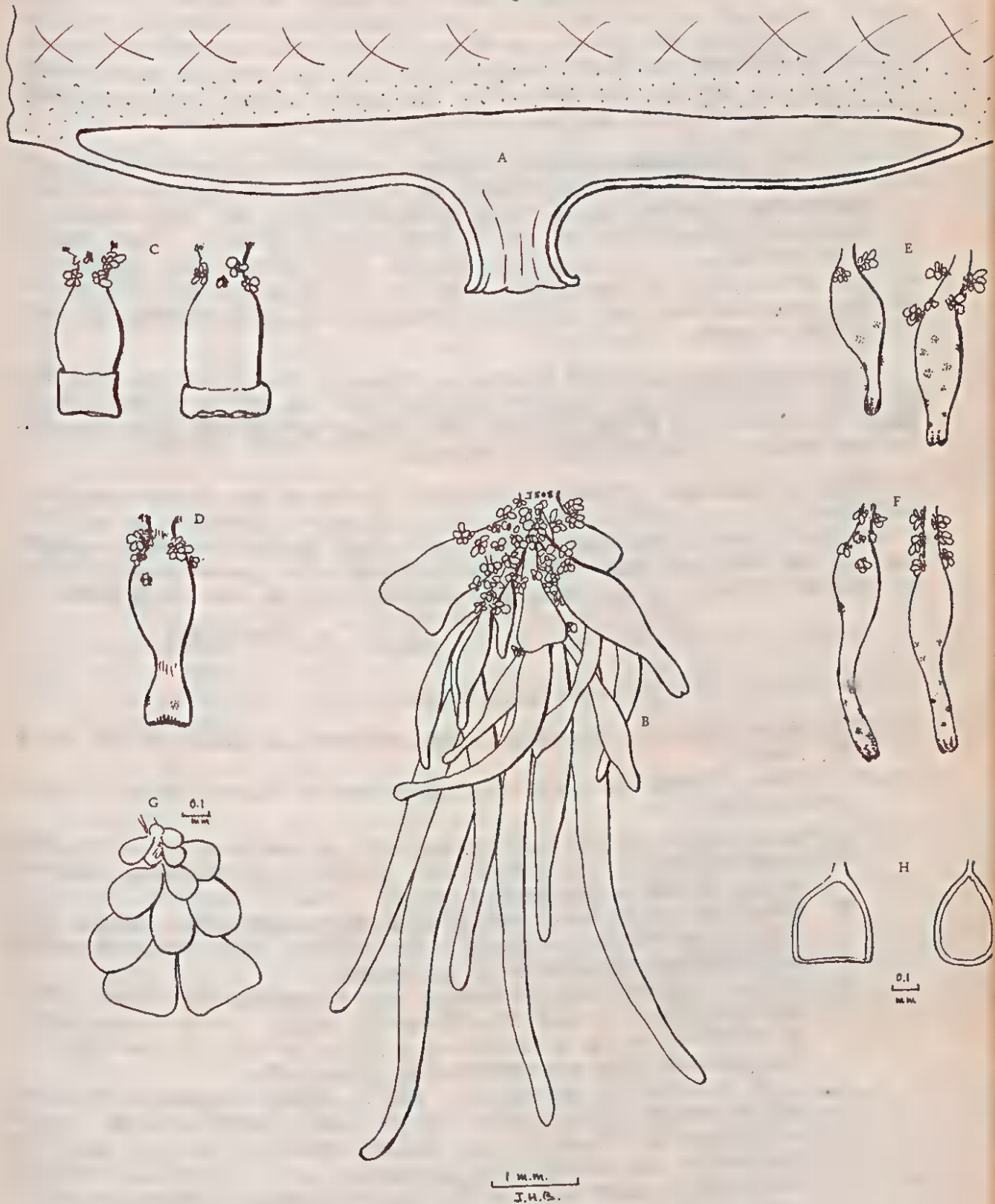




Figure 2



Further out again, where the stiffened disc gives origin to the skirting membrane, is a pallisade of long tapering finger-like processes (Figure 2, B), forming a complete circle around the feeding and reproductive members. These are the tentaculozoids—a further specialisation of the polypoidal form, showing no mouth, and only a narrow cavity, but heavily armed with nematocysts. Although usually regarded as defensive elements, these tentaculozoids play an important role in the trapping of food. At rest, in calm water, *Velella* spreads its tentaculozoids like the spokes of a wheel, periodically sweeping them downward and inward towards the gastrozoids.

Like many other siphonophores, *Velella* is sensitive to rough handling and chemical irritation. The usual response is a casting off of tentaculozoids.

Despite the vast number of nematocysts located on the undersurface of the disc, this siphonophore can be handled with impunity. When closely observed, *Velella* is an object of great beauty. The grace of the translucent sail, the deep purple of the central zone, the iridescent silver of the concentric rings, and the finely patterned greenish skirt, will impress the most phlegmatic observer.

Specimens appear on local beaches at intervals throughout the year, but are most numerous during summer months, after easterly or north-easterly winds. At such times *Velella* is often accompanied by the two other common floating siphonophores, *Physalia* and *Porpita*.

Note to collectors: All *Velella* collected by me in the Cairns area have conformed with the configuration shown in Figure 1. However, a beautiful illustration in Dakin's "Australian Seashores" (1952) shows a reversed arrangement of the disc and sail. Mirror-image forms of *Physalia* (see Siphonophores, Part 1) occur in this area, and the same may be true for *Velella*.

J. H. BARNES.

### LEGENDS.

Fig. 1. *Velella* from life (Specimen J508, collected at Bells' Beach on 7. VII. 1960).

Fig. 2. Zooids of *Velella*, from the specimen shown in Figure 1, after formalin preservation

- A. Longitudinal section through the central gastrozoid, showing the large mouth and the fore-and-aft extension of the cavity (coelenteron), of this major feeding polyp.
- B. Zooids on a strip torn radially from the under surface of the disc, illustrating progressive modification in shape and length of polyps at increasing distances from the centre.
- C. Typical zooids from the central zone, beneath the "liver". The functional mouths and dilated cavities would qualify these polyps as gastrozoids, but because they give rise to reproductive elements (gonophores) they are classified as gonozoids.
- D, E, F. Gonozoids, representing the changing forms seen between central and peripheral zones. In the intermediate zone the polyps are longer, and have smaller mouth openings. Further out, the gonozoids are considerably lengthened, and are probably mainly protective in function (i.e. the outer zooids are approaching the category of dactylozooids). The outermost members, seen as greatly elongated structures in B, are frank dactylozooids, having neither mouth nor gonophores; because of their tentacle-like form and function, they are referred to as tentaculozoids.
- G. A cluster of gonophores, considerably magnified.
- H. Gonophores maturing towards the medusoid form. When fully developed, the gonophores of the Chondrophorae are freed as minute medusae.



# WADERS OF CAIRNS ESPLANADE

BY JACK WHEELER.

The purpose of this paper is to record and indicate the wealth of wader observations that can be carried out with extreme ease along the foreshore or esplanade at Cairns.

During brief visits to Cairns in 1952, 1953, 1954, 1957 and 1961, daily counts were made by two observers, Roy Wheeler (WRW) and Jack Wheeler (JRW), along 1½ miles of the Cairns esplanade, extending northwards from the city proper to the belt of mangroves beyond the Cairns Hospital.

Space does not permit a full detailed listing of daily counts, but the accompanying chart lists the best total on any one day during a period, and the larger totals are of course the nearest possible approximate numbers.

Some wader migrants winter in Australia (non breeding birds) but by the breeding plumage noticed on many of the birds along Cairns foreshore, it is apparent that September and October are probably the best months for observing.

The tidal flats along the Cairns esplanade consist of reasonably deep mud with scouring channels, and the best observing was carried out when the incoming tide was between half and three quarters flood.

Birds listed are as follows :—

- Arenaria-interpres.** (Turnstone). Seasonal migrant. Not regularly observed. Best total 12 birds September 15th, 1952.
- Lobibyx-miles.** (Masked Plover). Local species. Frequents more inland waters. Common on foreshore during dry season of 1961.
- Pluvialis-squatarola.** (Grey Plover). Rare migrant. Observed once only September 12th, 1954. L. Amiet lists three for Cairns.
- Pluvialis-dominica.** (Pacific Golden Plover). Regular migrant. Usually observed in small parties.
- Charadrius-mongolus.** (Mongolian Sand Dotterel). Regular migrant. Usually in small flocks.
- Charadrius-alexandrinus.** (Red-capped Dotterel). Local species. Favours Coastal areas but does occur at times well inland.
- Charadrius-melanops.** (Black-fronted Dotterel). Resident species. Favours inland waters but dry periods will drive them coastwards.
- Himantopus-leucocephalus.** (White-headed Stilt). Indigenous species. Favours inland waters but very nomadic during dry seasons, as in 1961.
- Numenius-madagascariensis.** (Eastern Curlew). Seasonal migrant. Small numbers noted and not as plentiful up north as the Whimbrel.
- Numenius-phacopus.** (Whimbrel). Seasonal migrant. Always present. Largest flock was 125 on evening of September 6th, 1961, and just prior to dusk moved seawards in a south easterly direction.
- Numenius-minutus.** (Little Whimbrel). A rare migrant. 2 birds noted close inshore September 4th, 1961. Slightly larger than Greenshank. L. Amiet recorded 2 birds on foreshore November 1st, 1954. Few sightings only for Northern Queensland.
- Limosa-limosa.** (Black-tailed Godwit). Never very common. Seasonal migrant and can be easily overlooked when associating with Bar-tailed Godwits.
- Limosa-laponica.** (Bar-tailed Godwit). Common seasonal migrant and noted during all visits.
- Heteroscelus-brevipes.** (Grey-tailed (Asiatic) Tattler). Seasonal migrant and was seen on most visits. In eclipse plumage it very closely resembles the Wandering Tattler which is a rare visitor.
- Actitis-hypoleucos.** (Common Sandpiper). A rare visitor to Cairns. Sighted once September 6th, 1961, close inshore near mangroves, north of Hospital. L. Amiet has sightings for Cairns.
- Tringa-nebularia.** (Greenshank). Regular visitor in small numbers. Does not appear to be as common as down south.

- Tringa-cinerea.** (Terek Sandpiper). Regular migrant. Small numbers only.
- Calidris-ferruginea.** (Curlew Sandpiper). Seasonal migrant. Not seen on all visits. More common in southern Australia.
- Calidris-ruficollis.** (Red-necked (Little) Stint). Common migrant and regularly observed.
- Calidris-accuminata.** (Sharp-tailed Sandpiper). Common migrant and was regularly observed.
- Calidris-canutus.** (Lesser Knot). Seasonal migrant. Not regularly observed. Best flock of 23 birds near Hospital September 9th, 1961. L. Amiet has recorded sightings at Cairns.
- Calidris-tenuirostris.** (Greater Knot). Rare migrant. 3 birds near Hospital September 8th, 1961. Size and plumage most distinctive. L. Amiet has sightings for Cairns.
- Limicola-falcinellus.** (Broad-billed Sandpiper). Probably the rarest of waders to visit Cairns. 3 birds noted September 30th, 1954, and 1 bird October 4th, 1957. L. Amiet also has a single sighting of this specie for Cairns. Reference of other waders listed by other observers for Cairns district —

Oriental Dotterel.

Large Sand Dotterel.

Marsh Sandpiper.

Southern Stone Curlew.

Beach Stone Curlew.

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L. Amiet, "Emu", Vol 57, Page 236

Double-banded Dotterel.....J. Liddy, Aust. Bird Watcher, Part. 3.

#### ACKNOWLEDGEMENT —

World Bird Lists published by Bird Observers Club of Victoria, and Personal Observations and Notes provided by Roy Wheeler.

Observer.	WRW	JRW	WRW	WRW	JRW	JRW
	DATES.					
	1952	1953	1954	1957	1961	1961
	Sept.	Sept.	Sept. 8	Oct.	Aug.	Sept.
	8-15th	13-16th	to Oct. 2	2-6th	11th	3-9th
SPECIES.						
Turnstone	12		8	11		2
Masked Plover			5	4		15
Grey Plover			1	1		
Pacific Golden Plover	12	5	40	20		12
Mongolian Sand Dotterel	50	50	72	50		12
Red-capped Dotterel	20	18	10	1		5
Black-fronted Dotterel	4					8
White-headed Stilt				12	6	13
Eastern Curlew	10	5	14	20	1	8
Whimbrel	30	26	27	6		125
Little Whimbrel						2
Black-tailed Godwit	1	3		8		10
Bar-tailed Godwit	50	32	30	60	8	25
Grey-tailed Tattler	2	2	16	20		45
Common Sandpiper						1
Greenshank	2		14	2		8
Terek Sandpiper	1	4	16	4		8
Curlew Sandpiper	4		6	40		50
Red-necked (Little) Stint	50	300	110	400		200
Sharp-tailed Sandpiper	300	500	40	200	50	250
Lesser Knot	1			1		23
Greater Knot						3
Broad Billed Sandpiper			3	1		



## EDITORIAL

It has been decided to revise the Orchid Check List as the present one is very much out of date. Mr. Alick Dockrill is now undertaking this arduous work and we hope to have it published in the next two or three months. It will probably cost quite a bit more than the old one but I am sure those buying it will find the money well spent.

Field Days have not been attended very well. This is a great pity as a good Field Day enables the members to help each other, discuss their interests, meet Country Members and take an interest in fields other than their own. The Field days are being held on the Sunday preceding the meeting and the venue and date are always published in the Cairns Post under the report of the meeting. It is hoped that more Town and Country members will take part in future.

Juniors — the Show is nearly upon us and that is the time for the Flecker Memorial Medallion Essays competition. Most years this has been very poorly patronised and I hope that this year all juniors will try and have a go. The competition is open to all juniors under 20 years of age and they need not be members of the Naturalists Club. This year two more prizes are being offered, so come along Juniors and send your entries in.

A parcel of sundews was sent to Meerut College, Meerut, India to enable a student to complete her studies. We are also endeavouring to collect Finger Cherries to send down to Defence Standard Laboratories in Victoria for research work.

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## OBITUARY

### Mr. Berkley Hamilton Cook.

The North Queensland Naturalists Club, with other organisations, was very unfortunate in losing a member of such high calibre as Berkley Cook, who passed away at Cairns on Anzac Day.

Berkley had been a member of the Club for many years and was always willing to assist at all times in any way possible. He did a magnificent job over the years, catching and milking taipans and sending the venom to the Commonwealth Serum Laboratories where it was manufactured into anti-venene. The lives of many people bitten by taipans have been saved by this anti-venene.

He was always available at any hour of the day or night to go and catch snakes found in houses or gardens and to help Doctors and the hospital with the identification of snakes in case of snake bite.

His familiar face will be missed from the various Shows and Rodeos in the North where he was always willing to exhibit his "Snakes Alive" Show for the benefit of the Q.A.T.B.

Not only the North Queensland Naturalists Club will be the poorer in losing such a competent member as Berkley, but he will be missed by the community as a whole.

He was a returned Air Force member, having attained the rank of Flight Lieutenant.

To his sorrowing widow and relatives we extend our deepest sympathy in their sad loss and feel that although he has departed, his spirit and good work will live on.

Vincent Reilly, President.

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**WANTED ! WANTED ! WANTED !** "Butterflies of Australia" by Waterhouse and "What Butterfly is That?" also by Waterhouse. Anyone who has either of these two books and wishes to sell please get in touch with Mr. E. Little, 52 Anderson St., Werribee, Victoria.

## SPECIALIST ADVISORY PANEL

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—C-O-O—

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N/8/11

## CLUB HANDBOOKS

Check List of North Queensland Orchids, 1964 (In course of Revision).

Check List of North Queensland Ferns	....	....	....	....	....	....	....	1/-
Edible Plants in North Queensland	....	....	....	....	....	....	....	2/-
List of Birds Occuring in North Queensland	....	....	....	....	....	....	....	2/-
Marketable Fish of the Cairns Area	....	....	....	....	....	....	....	1/-
Check List of Australian Dryopidae	....	....	....	....	....	....	....	6d.

(Plus Postage)



# THE NORTH QUEENSLAND NATURALIST



CAIRNS

## Journal of NORTH QUEENSLAND NATURALIST CLUB

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"Each author is responsible for the opinions and facts expressed in his or her article".

## NORTH QUEENSLAND NATURALISTS' CLUB

Founder, Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**GENERAL MEETING** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** excursion Sunday prior to meeting.

**VISITORS** are welcome, especially members of Australian and Overseas Clubs and Societies.

**LIBRARY** open each Club Night and by arrangement with Librarian.

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**Subscriptions (Due September 30) :**

City and Suburban Members, £1/5/-.

Country Members, 15/-.

Junior Members, 5/-.



**CAUTION — KILLER AT WORK.**

At about 7 o'clock this morning (1st April) our attention was drawn to disturbed movements in the back garden. A large Indian Turtle-dove was on the lawn making little runs at a Black Butcherbird, which gave way before it to perch low on one nearby tree or another, but persistently returned to a brown object on the grass. This at first I thought to be a dead leaf. But then the Butcherbird made a more determined approach, pulled at and partly lifted the object and began to drag it along the ground, and I realised it was a half-grown nestling, with a long strand of grass from the nest still tangled about it. It appeared to be quite dead, but was fully half the size of its attacker and no easy task to pull along. Now the dispirited parent resisted no more, but merely followed at a distance of 4 or 5 feet. The Butcherbird at last reached a stump lying on the ground, hauled its victim up and over, and lodged it against the rough end. There it immediately began to pluck feathers and fluff from the small corpse with the hooked tip of its steely white beak.

At this stage, Cat left the doorstep to take a closer look at "them thar birds". As she approached the Butcherbird flew into the tree above, but the dove remained unmoving. Moments passed; Cat crouched lower and lower; and still the dove sat, one point of an equidistant triangle with the cat and the nestling against the stump. Then the Butcherbird above began to fidget and make a croaking sound at the cat. The dove at last walked a little way and then flew off towards the next yard, where presumably the ravaged nest had been.

Almost simultaneously the Butcherbird flew to the next tree, and Cat leaped the garden bed and raced up the tree after it. Butcherbird flew down to a trellis. Cat backed down the tree and crouched, with waving tail. Butcherbird flew, croaking, to another trellis. Cat, now enjoying the game and without any notion of the pathetic little prize at stake, stalked cautiously towards it; then went racing across the yard again as the bird flew, and up another tree. This time, however, the butcherbird remained quite still and quiet among the topmost leaves. Presently Cat, having cast about a bit and lost her quarry, jumped down from the tree, hared up another for good measure, then came romping back towards the house.

For long minutes the Butcherbird made no move. Then abruptly it flew back to the trellis, down to the stump, and with grim efficiency resumed its interrupted business. A few tugs, a few morsels swallowed, and then the head of the young dove was off and carried up into the tree, where the butcher placed it in a fork to be further tugged at. After being deftly caught and replaced several times on the branch, it was dropped, but at once picked up again and carried to the next tree out of sight. A few minutes later the busy bird was back to attend to the rest of the corpse. This it now attempted to fly with, obviously intending to get it up into a tree also. Two or three laboured "hops" took it over a tall clump of weeds and out of sight.

About 9 o'clock the butcherbird was glimpsed again in the tree to which it had last taken the Dove's head. It made several vigorous head movements as I watched, but whether it had some part of the body there or was merely cleaning its beak, I could not tell. We have not been able, since, to discover any remains of the meal — surely there must have been some? Nor have we been able to locate the nest from which the butcherbird had dragged its unwieldy victim, or to guess the distance it had come.

One wonders, too, if the luring away of the cat was fortuitous or deliberate, and what the outcome would have been had the cat discovered the butcherbird's prize. We suspect the villains might be well matched.

K. J. MORRIS.

## LIFE HISTORY OF A CILIATE BLUE BUTTERFLY

N. C. COLEMAN

In the late afternoon of June 29th, 1964, I saw a small blue and white butterfly with short wing cilia, ovipositing on terminal buds and young leaves of a flame tree. These eggs were laid singly and in small groups of up to four. They were pale greenish white when freshly laid, but became glistening white by the end of the next day. The eggs were about 1mm in diameter, spherical, with a slight flattening. The surface was beautifully sculptured by fine ridges at right angles, forming microscopic squares excepting on the uppermost flattened surface, which was smooth and circular and, from which the larva eventually emerged. Green ants were plentiful on the foliage but, though they were often quite close to the butterfly, no attempt was made to attack her.

I took some of the leaves with attached eggs home with about two dozen green ants and placed them in a glass covered box for observation. I left about thirty eggs on the flame tree and these I observed before and after work and on week ends until their subsequent emergence from the pupa about a month later. On the following day the eggs left on the tree were being guarded by one or more green ants in attendance on each egg or group. In the observation box the eggs were also being guarded but the ants moved about a good deal. Whenever I returned to the flame tree there were always ants in attendance on the eggs which hatched in from seven to nine days. The eggs in the observation box were two to three days longer in hatching — This may have been due to less light or lower temperature owing to the box being continually in the shade — whereas the eggs on the flame tree had several hours of sun per day. The larvae were about 2mm long, pale green, and sluglike in shape. They grew rapidly, both on the tree and in the box. In both situations the green ants were now guarding the larvae closely and, if an object on the finger, were thrust close to the larvae, it was immediately attacked by the gaping mandibles of the ant. Fresh leaves were provided to the larvae in captivity which grew nearly as fast as those on the flame tree. Both groups of larvae were examined daily with a hand lens and a few were observed from both groups each day with the low power of a microscope. The larvae in the flame tree were 6-7mm long and 1½ mm to 2mm broad on the 6th day after hatching. Those in the box were about three quarters this size. In both groups the colour was a uniform pale green on both dorsal and ventral surfaces, the head was a pale brown. The larvae had eleven body segments (excluding the head) and were covered, on the dorsal surface, with fine light brown bristles. The first segment extends forward to form a shield over the head which cannot be seen when the larvae is in an upright position. Five ocelli (or simple eyes) is a crescent shaped group on each side of head. Segments 2, 3, 4 with prolegs segments 6-10 with abdominal feet and a pair of anal procs on the eleventh body segment. On the 8th day after hatching some of the larvae on the flame tree were about 9mm long and had changed colour on the dorsal surface to an intricate pattern of brown and light green. Before this size had been reached a small round gland had been developing on the dorsal surface of the tenth segment. This gland was now functioning and exuding small drops of a clear fluid. This gland alternately was stroked and licked by the green ants. The typical response to the ants stroking was the exuding of a small drop of clear fluid plainly visible to the naked eye. One or more ants were in attendance on each larvae and though there was some jostling and pushing I saw no signs of hostility between individuals. One of them would take a turn at stroking and licking and allow itself to be pushed aside by an insistent fellow worker who wanted a share of the spoils.



On the 8th day after hatching 15/7/64 I took six of the largest larvae from the flame tree and placed them in a second observation box with about 20 green ants from a different locality that had, as far as I could ascertain, no contact with larvae of this butterfly or related species. Food (crushed insects and honey) and water were placed in this box and fresh leaves were provided daily for the larvae. These fed fairly constantly and only seemed a little disturbed by the change of surroundings. The green ants wandered around and some of them ate part of the food provided. At first, as their movements brought them close to and sometimes in contact with the larvae these ants reacted aggressively with uplifted antennae and gaping mandibles. As their encounters with the larvae were repeated, the aggressive attitude lessened considerably and the ants began tentatively waving their antennae as though testing the air. If their antennae or forelegs had contacted a larvae several times they would draw them through their mandibles and, while doing this would often be approached by another ant and stroked by the latter's antennae. This seeming testing and tasting went on for nearly half an hour before the first drop was actually licked off a gland. Once the gland was located by the ants, they tended to crowd around the larvae and push and jostle one another for a favourable position. With all this crowding and shoving there was no sign of hostility between individuals but the unsuccessful ones would try to lick the jaws and antennae of those who had been fortunate enough to obtain a drop of the gland fluid. As the larvae grew larger, in observation box and on the tree, the green ants would stand on the larvae's back and would even ride round on the insect as it sometimes changed feeding positions. During the period of observation I saw only one cast larvae skin, extremely thin and like a tiny transparent sausage. Presumably the larvae of this butterfly eat their cast skins as do the larva of some other butterflies. At their maximum growth the larvae grew about 18mm long by 5mm broad. Eggstage 7 to 9 days. Larval stage 13 to 16 days. Pupal stage 6 to 11 days. On pupating larval length is reduced by about one third width unchanged. Green ants are in attendance from egg to adult stage, the pupal stage seems to be guarded more strongly than any other, the ants at this stage being very aggressive.

The first adults emerged on the flame tree on 25/7/64, but none of these was captured. A few pupal cases on the tree showed small emergence holes of some parasite. Five females raised from observation boxes, many pupae in boxes failed to emerge, none of these showed parasitism. First adult emerged in box 26/7/64. Adult female 26mm across wings, body length 20-21mm

**Colouration.**— Dorsal wing surface, metallic azure blue with black edge to rear margin of wings, two small dark patches on rear of each hind wing, dorsal surface of body. — Thorax and fore part of abdomen black, rear drum of abdomen dark with dusting of golden scales. Very long sparse pubescence over upper surface of body.

Dense greyish white pubescence on frontal margin of thorax nape mixture of white grey and black scales in intermingled band.

**Antennae.**— Tapering out from pedicel 18 and segments greyish with alternate white bands, black towards tip, tip of antennae yellowish orange.

**Eyes.**— Dark brown with greyish white bristles.

**Legs.**— Normal, white streaked and banded grey and dark brown, dense white pubescence on ventral surface of thorax. Under surface of wings medium grey with irregular white banding. Small orange and black patch on rear ventral surface of hind wing.

# A NEW SPECIES OF GASTRODIA (Orchidaceae) FOR AUSTRALIA

By A. W. DOCKRILL

*GASTRODIA QUEENSLANDICA* Spec. Nov.

*Saprophytus parvus et nudatus folius. Tubera aequus, 2-7 x 0.4 — 0.7 cm, subtereta. Radices 3-8 a coniunctione caulis tuberique, telus longicae 12 cm et latae minus 1 mm. Caules 3-8 x 0.15 — 0.25 (extendens autem usque ad 30 cm evo fecundo), Tenerrimus et fragillimus; bracti 4, 3 in vaginam tecte recondentes et scarrii, quartus bractus in vaginam non reconditus, adversus summum aliorum trium positus ist. Flores 1-2, subflavi extra, luteusculis intra 8-12 mm longi, segmenta periantha coniunct prope ad apices, tubum aliquanto depressum producunt; sepala erant crassa, obscure tuberculata extra. Sepalum dorsalum 8-12 x 5-6 mm, obovatum-cucullatum. Sepala laterales 8-12 x 6-7 mm, cymbiformes, firmiter carina extra, callus obovatus rugosus in apex  $\frac{1}{2}$  intra. Paris liberis petalorum c. 2 x 2 mm, subdeltoidium, apex recurva. Labellum c. 4.5 — 5.5 x 2.5 — 3.0 mm, connectibus basibus sepalorum lateraliorum lorato unguine in media qua sunt duo calli magni, subclavata, firmiter tuberculati utrumquem; lamina trilobata; loba laterales c. 1.0 x 2.5 mm, supercurva, subcrescenta, summa ad basis; lobum medium c. 1.5 x 1.0 mm, oblongum, obtusum, decurvum; medio discum medio lobi medi sunt duo consimilia alta angusta iuga c. 1 mm lata et 0.5 mm alta. Columna c. 7 x 3 mm, aligna; alae erecte sed decurvae similis coriis extendentes super aliquanto anthero; columnum partes priores et laterales quae extant, et alae aut nigrae aut fuscae sunt. Stigma in ima columna, obliqua subscutiformis; ima pars quae similis lunae crescens est, erecta. Rostellum suggestus est ovalus et decurvus leve qui extant ab ima extra clinandrii. Anthera promeste disiunctus, bicellis, brevis, carinata; rostra parvissima, decurva. Pollinia 4 in pares 2, sine stipes aut caudiculi, grana iniqua crassaque. Fructus rectus, c. 2.0 x 0.6 cm, cylindratus.*

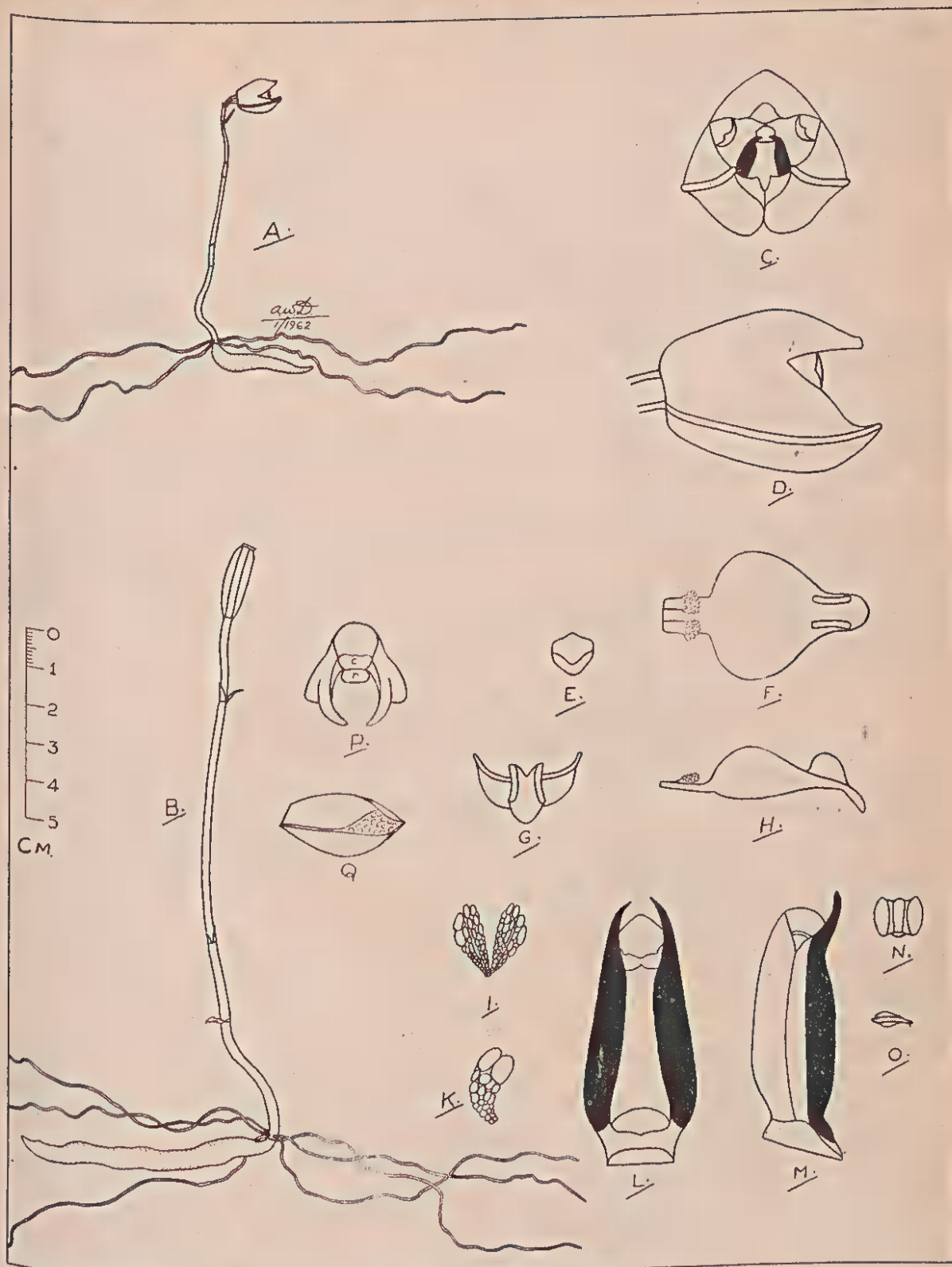
**HOLOTYPE:** LITTLE MULGRAVE RIVER, NORTH QUEENSLAND  
(A. W. Dockrill, 6th January, 1962 — BRI)

**DISTRIBUTION:** Plants have been observed in an area extending from the Bloomfield River to the Russell River in North Queensland, but the range is probably greater than this.

A small leafless saprophyte. Tuber horizontal, 2-7 x 0.4 — 0.7 cm, subterete. Roots 3-8 from the junction of the stem with the tuber, up to 12 cm long and less than 1 mm diam. Stem 3-8 x 0.15 — 0.25 cm (but elongating to as much as 30 after fertilization of the ovary), extremely delicate and brittle; bracts 4, 3 closely sheathing and scarious, the fourth not sheathing and situated opposite the uppermost of the other 3. Flowers 1-2, dingy yellow outside, orange inside, 8-12 mm long, perianth segments fused together almost to their apices to form a somewhat depressed tube; sepals thick in texture, indistinctly tuberculate outside. Dorsal sepal 9-12 x 5-6 mm, obovate-cucullate. Lateral sepals 8-12 x 6-7 mm, symbiform, strongly keeled on the outside, on the apical half inside, there is a raised obovate rugose area. Free portion of petals about 2 x 2 mm, subdeltoid, apex recurved. Labellum about 4.5 — 5.5 x 2.5 — 3.0 mm, attached to the bases of the lateral sepals by a lorate claw in the middle of which are 2, one on each side, large, subclavate, strongly tuberculate calli; lamina trilobate; lateral lobes about 1.0 x 2.5 mm, upcurved, subcrescentic, highest towards the base; mid-lobe about 1.5 x 1.0 mm, oblong, obtuse, decurved; extending from the centre of the disc to the centre of the mid-lobe are 2 parallel, high, narrow ridges about 1 mm wide x 0.5 mm high. Column about 7 x 3 mm, winged; wings erect but curved horn-like, extending well above the anther; the anterior lateral portions of the column, which are prominent, and the wings, are black or dark brown. Stigma at the base of the column, oblique, subscutiform, the basal crescentic section raised. Rostellum an oval, slightly decurved platform projecting from the anterior base of the clinandrium. Anther readily detached, 2-celled,



# GASTRODIA QUEENSLANDICA DOCKR



- A.— Plant.....To Scale  
 B.— Fruiting Plant.....To Scale  
 C.— Flower from the Front.....To Scale x5  
 D.— Flower from the Side.....To Scale x5  
 E.— Stigma.....To Scale x10  
 F.— Labellum from Above.....To Scale x10  
 G.— Labellum from the Front.....To Scale x10  
 H.— Labellum from the Side.....To Scale x10

- I.— Pollinia from the Front.....To Scale x20  
 J.— Pollinia from the Side.....To Scale x20  
 K.— Column from the Front.....To Scale x10  
 L.— Column from the Side.....To Scale x10  
 M.— Anther from Above.....To Scale x10  
 N.— Anther from the Side.....To Scale x10  
 O.— Top of column, Anther and Pollinia removed, from Above.....To Scale x10  
 P.— Lateral Sepal Inside.....To Scale x3

shallow, ridged; Rostrum very small, decurved. Pollinia 4 in 2 pairs with no apparent stripes or caudicles, coarsely and unevenly granular. Capsule erect, about 2.0 x 0.6 cm, cylindrical.

The new species is perhaps most closely allied to *G. papuana* schltr., but differs from it mainly by the joined lateral sepals not being saccate at the base but rather at the exterior; the labellum clawed, thence rapidly dilated, thence constricted into a small mid-lobe and with 2 calli on the claw and 2 short high ridges near the apex rather than being not clawed, narrow-ovate, having 2 calli at the base and no apical ridges; the column stout near the base and becoming more slender near the apex rather than the reverse and the anther with a short, broad, more or less apiculate rostrum rather than a deitoid one. The new species does not remotely resemble the only other Australian species of the genus, *G. sesamoides* R. Br., being very much shorter in stature, not having swollen ovaries, and the flowers having a depressed appearance and having 2 tuberculate calli on the claw of the labellum.

This remarkable little orchid is found on the floor of dense rain forests, projecting a mere centimetre or two above the fallen dead leaves of trees, very much resembling, when viewed from above, a small toadstool of the same size and colour which is prevalent in such areas. It emerges from the ground after the first heavy summer rains (usually before the Monsoons) develops very quickly and the flowers drop off the plant almost as soon as they reach maturity and since fertilized ovaries are common, the flowers are probably cleistogmatic to a large extent. The whole process from the emergence of the plant from the ground to the dispersal of seed only takes a few days.

—o-o-o—

## THE IMPERIAL BLUE BUTTERFLY

### I ALMENUS I CTINUS (HEWITSON)

During February of this year (1963) I was fortunate in discovering a locality where the Imperial Blue butterfly (*I ALMENUS I CTINUS*) was breeding. The area where I found them was in a small valley known as LENEVA which is approximately 8 miles from ALBURY; A city on the Victorian New South Wales border. They proved to be fairly well distributed here, and I found them in small colonies over a distance of nearly 4 miles.

This butterfly belongs to the LYCAENID family; A group of butterflies known by the popular term "Blues and Copper". Their colouring includes many shades of purple, violet, green and red. Brilliant blues and metallic hues predominate resulting in insects of extreme beauty.

From information I have, the range of this butterfly extends right along the east coast of Australia as far north as KURANDA. The caterpillars which I found were feeding on EARLY BLACK WATTLE (*Acacia' decurrens*) but I believe they also feed on BLACKWOOD (*Acacia melanoxylon*). The caterpillar is attended by the large meat ant (*Iridomyrmex detectus*) which guards them and will attack fiercely anyone interfering with the larvae or pupae. If a caterpillar is placed on the ground the ants immediately surround it and shepherd it back to the foodplant. The caterpillars feed openly during the daytime. The pupae are found attached to the branches and the trunk of the foodplant, and in most cases I found them singularly. The following is a general description of the specimens I succeeded in breeding. Wingspan approximately 1½ inches. On the upperside the outer margins of the wings are brown while the central areas, are green in the male and blue in the female. The lower edges of the hindwing are edged with black inside which is a narrow border of white which is broken up by a number of black dots. Inside this a small section of orange. From the lower part of each hindwing extends a narrow black tail tipped with white.

The underside colouring I believe ranges from grey to light brown. In my specimens it was a light shade of brown. This general colouring is broken up with lineal markings of black.

EDWARD LITTLE.



## — P E N G U I N S —

### THE ADELIES

Of all the several species of penguin the Adelie, (*Pygoscelis adelia*) is the one most familiar to Antarctic visitors. On our voyage south we met them many miles from the Antarctic coast and later on we were able to study them at close quarters ashore.

One of the smaller species, the Adelie is about 22 inches tall with black and white plumage, his clean "dinner suit" attire being matched by his pert air.

The Adelies nest in countless thousands each spring, on the ice-free areas of the mainland and on the rocky off-shore islands, and during their period ashore in the warmer months there were always several wandering through the station, often playing havoc with the nightwatchman's nerves during the silent hours.

The Husky pups, in playful mood, but with an eye to a meal of fresh meat, marrassed these wanderers unmercifully, although an adult bird was well able to hold it's own and many a pup was sent yelping with pain from the blow of a bony wing.

The older dogs, more sagacious than the brash young pups, patiently waited, feigning sleep until an over-curious bird approached too closely, then "snap" and another penguin provided lunch for one of these ever hungry animals.

Like others who had previously visited these regions, we could not fail to be intrigued by the strange mating and nesting habits of these birds.

The Adelies commence their journey over the sea-ice to the mainland and nearby islands late in October. They do little walking except where the ice surface is rough but move along at a much greater pace by "tobogganning" on their breasts, using their flippers and feet for propulsion.

On arrival at the chosen "Rookery" the male bird seeks to attract a mate by adopting the strange behaviour of stretching his neck upwards, beating his flippers and uttering guttural sounds.

After mating the pair of birds together make a "nest" of rounded stones and the "rookery" then becomes a hive of activity as the birds vigorously collect pebbles, often stealing from their neighbours when they think that they can get away with it! Then after about three weeks the eggs are laid and after the thirty five day hatching period each pair, if they are fortunate, become the proud parents of two fluffy grey chicks.

An extract from my diary reads as follows.....

**Monday, 18th December.**

".....took a break after lunch to go with Bill Young to Flat Island in order to check and photograph the Adelies. Found that only one chick had hatched so far, so he became the most photographed chick in Antarctica! Many of the penguins had two eggs and some had none. We robbed a penguin of one egg and presented it to another bird who was trying to hatch a stone! She quickly took possession. After spending about two hours trying to locate a Skua's nest which was known to be there, we found it only when one bird returned to sit on the eggs. The birds were extremely annoyed by our presence and repeatedly attacked us. A Wilson Petrel was removed from it's nest and photographed. There are dozens of them nesting under the rocks. No "Snowies" (Snow Petrels) were seen although it was reported that there were many nesting on the island. A very interesting trip but the ice rather hazardous. Nearly had a swim on one occasion".

We subsequently carried out several times this experiment of robbing a bird of one egg and giving it to another not so fortunate, in order to test their reaction. After the eggless one suddenly found herself in possession of an egg she adopted the attitude of a rightful owner, tucking it under her body and glaring aggressively at her near neighbours. The other bird on finding herself bereft of one egg carried out a hurried search and attempted to un-

seat one or two of those nearby in an effort to make good her loss.

However after a few skirmishes the fuss subsided and once again the rookery settled down to an uneasy truce, the case of the missing egg, apparently completely forgotten.

The predatory skuas patrolled the air above like hawks over a chicken run, waiting for an opportunity to snatch up an egg or chick. Although we noticed several broken eggs and some obviously dead, it was our opinion that the heaviest mortality was due to the attacks of skuas.

For approximately two weeks the dark fluffy chicks are protected by the mother's body, after which the parents are able to leave for the nearest tide-crack or seal hole in their search for food.

A strange feature at this time is the grouping of all the chicks for mutual protection and for warmth.

The young penguins grow rapidly as the parents work hard to feed them with semi-digested shrimps and after about four weeks they are fully grown, ready to leave the rookery and fend for themselves.

Daily trips were made by other members of the party to the islands but the sea-ice was now showing signs of breaking up and after two weeks I was reluctantly forced to call a halt to these visits.

Off the coastline of MacRobertson Land, on which Mawson Base is situated, there are many hundreds of small islands, most of which are inhabited by the Adelie Penguins during the breeding season. As a result heavy deposits of guano have built up over the years, in some cases which we noted, up to a depth of three feet. The deposits contain large proportions of feather and down, the result of moulting, and also numerous mummified bodies of the penguins themselves.

How the gardeners amongst the party would have liked a few sacks of this phosphate and nitrogen rich fertiliser at home!

Although the sweetish odour of the guano was not altogether unpleasant we learnt to avoid camping on rookery islands when using dog teams because the animals on quenching their thirst by licking the surface snow, became very ill.

During the early months of the year the birds remained ashore for the moult when every nook and cranny, every sheltered spot, contained some very dejected looking penguins. Some groups preferred to moult in comparatively open places on the snow, but always on the northern slopes of a mound or hill where there was stronger sunlight and some protection from the daily Katabatic wind.

Unless disturbed, which annoys them very much, the penguins remain practically motionless for days on end, apart from occasionally assisting the removal of their old plumage with their beaks, and having a few arguments amongst themselves. As the old plumage is shed in untidy patches its place is taken by a growth of short, fur-like down which apparently provided adequate protection against the bitter cold. During the few weeks of moulting they do not eat but are sustained by their accumulated body fat; however by the time they are ready to return to the sea they are starved looking birds indeed.

Now this is a land of severe blizzards, some of them lasting for three or four days which howling winds often exceeding 130 miles per hour in velocity and bringing from the Plateau, clouds of stinging drift snow which reduce visibility to almost nil. For humans it is a time of danger and discomfort and even for the huskies, bred to withstand the sub-zero bitterness and the smothering clouds of snow, it is a trying and miserable time.

But what about the penguins, nesting on the rock exposures of the islands or "sitting out" the moult?

To find the Adelie population apparently unharmed after a severe blizzard, to find any living thing, was to me a source of amazement. Truly nature looks after her own!

G. MASLEN.



## EDITORIAL

At this point it is fitting we should review the clubs activities over the past 12 months and give some idea of what is proposed for next year.

Our meetings are attaining a higher standard of interest and we have heard excellent lectures by our own and guest speakers. Also the quality of films and slides shown has been good with ample material available and a promise of more to come.

Field Days have sometimes been poorly attended but this is receiving the attention of our live wire committee. We lack botanists amongst our members but Mr. Gordon Stephens who was formerly an active member of the Club has agreed to accompany us on a Field Day either in November or December. He has an extensive knowledge of our trees and plants and we should learn a lot from him. This idea will be extended to other fields, geology, reptiles etc., and we hope will result in adding interest and increasing attendances.

Parcels of specimens have been dispatched to Meerut College, India and the Queensland Naturalists Club and this opportunity it taken of commending the keen members responsible for collecting and dispatching same.

Our Orchid Check List is being revised by Mr. Alick Dockrill who is taking pains to do the job properly. Publication of the new list will take some time as several new species have still to be published before it can be printed. Intending purchasers please bear with us a while longer.

Entries for the Flecker Memorial Medallion were poor, only one being received from Peter Cassels who was awarded 2nd prize but no medallion. That entries from our juniors were so few can be attributed to lack of interest by we older members. We should and must encourage our children to take an active interest in nature. A hobby such as this can become absorbing and be the means of keeping ones feet squarely on the ground in the ever increasing tempo of modern living.

The regular publication of this journal depends mainly on two things — availability of material to print and money to print it with. Articles short or long are always wanted. Each of us is continually observing happenings in nature that would be of interest to others so let your editor have your observations. Don't let inability to write fluently deter you. If necessary send notes only, we can knock them into shape for publication. Write Box 991 or Phone Jack Cassels, Cairns 3703 (working hours) or Mrs. Geddes 2323 to leave messages for onward transmission.

Like most no-profit Clubs, we depend mainly on members subscriptions for finance so as these are now due again, please send yours promptly. The sending of reminder notices cost the Club money and means more work for the Treasurer. Donations will be gratefully received.

The Club has been active on Conservation but space does not permit a more detailed account.

We can get out of anything only as much as we put into it so let us strive to make our Club function as it should — a force in the study, enjoyment and conservation of nature.

## SPECIALIST ADVISORY PANEL

Astronomy	.....	Mr. C. CANTRILL
Botany	.....	Mr. S. E. STEPHENS, F.R.H.S.
Conchology	.....	Mrs. A. J. READ
Entomology	.....	Mr. N. C. COLEMAN and Mr. G. BROOKS, F.R.E.S.
Geography	.....	Mr. J. ORRELL, F.R.G.S.
Herpetology	.....	Mr. V. M. REILLY
Marine Biology	.....	Mr. A. A. READ
Mineralogy	.....	Mr. K. COLLINS
Ornithology	.....	Mrs. J. CASSELS, Mr. J. BRAVERY
Orchidology	.....	Mr. A. W. DOCKRILL, Mr. S. St. CLOUD

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## CLUB HANDBOOKS

Check List of North Queensland Orchids, 1964 (In course of Revision).

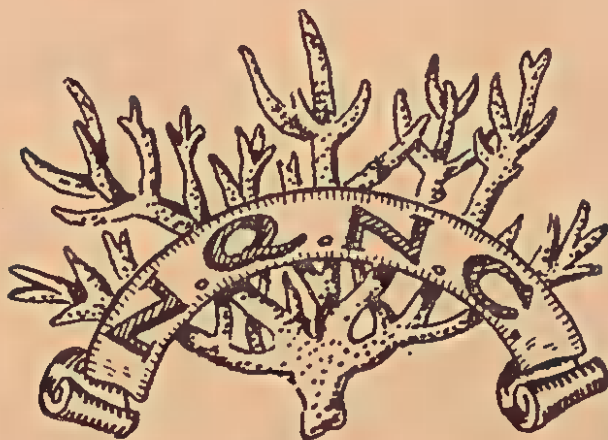
Check List of North Queensland Ferns	.....	1/-
Edible Plants in North Queensland	.....	2/-
List of Birds Occuring in North Queensland	.....	2/-
Marketable Fish of the Cairns Area	.....	1/-
Check List of Australian Dryopidae	.....	6d.

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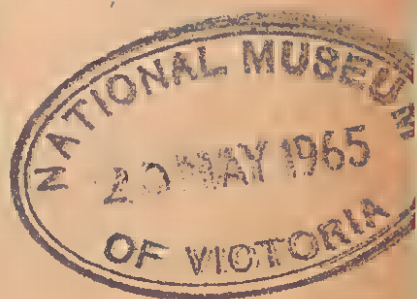


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# THE NORTH QUEENSLAND NATURALIST



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## SPECIAL ISSUE

**Chironex fleckeri & Chiropsalmus quadrigatus —  
Morphological Distinctions.**

**By J. H. BARNES.**

"THE AUTHOR IS RESPONSIBLE FOR THE OPINIONS AND FACTS  
EXPRESSED IN THIS ARTICLE."

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## NORTH QUEENSLAND NATURALISTS' CLUB

Founder Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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### Club Officers — September 1964 to September 1965.

**Patron :** Mr. J. Wyer.  
(Foundation Secretary)

**President :** Mr. A. J. Cassels.

**Vice Presidents :** Mr. H. Ziegenfusz, Mr. C. Coleman and Mr. V. Reilly.

**Secretary :** Mrs. M. L. Cassels.

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**Publications Committee :** Mr. A. J. Cassels, Mr. A. Dockrill, Mr. Coleman and  
Mrs. M. L. Cassels.

**Trustees :** Mr. A. Read, Mr. St Cloud and Mr. Reilly.

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**GENERAL MEETING** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** excursion Sunday prior to meeting.

**VISITORS** are welcome, especially members of Australian and Overseas Clubs and Societies.

**LIBRARY** open each Club Night and by arrangement with Librarian.

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### Subscriptions (Due September 30) :

City and Suburban Members, £1/5/-.

Country Members, 15/-.

Junior Members, 5/-.



# Chironex fleckeri & Chiropsalmus quadrigatus — Morphological Distinctions.

By J. H. BARNES, 56 Abbott Street, CAIRNS.

In summer months, the coastal population of northern Australia has a stinger problem. From Broome in the west to Gladstone on the east, tropical inshore waters are at times heavily infested with jellyfish, representing some hundreds of different species. While the vast majority of these are quite harmless to humans, twenty or more species are known to cause mild and transient skin irritations, a few raise painful weals, one (the "Irukandji" carybdeid) causes a very unpleasant short-term illness, and only the large multi-tentaculate Cubomedusae (variously called "box-jellies", "cubos", or "sea-wasps") are currently accepted as potentially lethal stingers.

Deaths due to marine stings are not numerous, averaging less than three per annum for the whole Australian coastline, but there is a special quality about these deaths which has demoralised a large section of the bathing public.

Community reaction to "stinger deaths" is out of all proportion to their frequency, and it is indeed remarkable and alarming that, in their fear of marine stings, many people are now turning to rivers and freshwater pools, where the risk (and actual incidence) of drowning exceeds all combined hazards likely to be encountered at an efficiently patrolled beach.

There is then an urgent need for unemotional review of relative risks, taking full advantage of existing knowledge, and seeking further information by appropriate investigation. Such investigation must concern itself primarily with the Cubomedusae, for in Australian waters these are apparently the only jellies which threaten life, or regularly produce severe injury or illness.

A recent publication, "Cause and Effect in Irukandji Stingings" (Barnes, Medical Journal of Australia, June 13, 1964) describes in detail the conditions under which Irukandji stings occur, and outlines effective medical treatment. Our major efforts are now directed against the large "box-jellies", *Chironex fleckeri* and *Chiropsalmus quadrigatus*.

Although these two jellyfish are very similar in appearance, and appear during the same season, they differ very widely in distribution, behaviour, and stinging potential. Because of these important differences it is not possible to make accurate predictions, prescribe correct treatment, or collect specific venom, until reliable identifications have been established. And obviously, to be of maximum value, such identifications must be made on the spot, without waiting for the services of an expert.

Fortunately, because we are dealing with only two common species, any obvious differences between these two can be used for what might be called "spot diagnosis". The occasional errors which may arise in these provisional identifications will be less important than the many advantages to be obtained.

I propose therefore to describe certain structural (morphological) distinctions between *C. fleckeri* and *C. quadrigatus*, to be used for these practical purposes. As most serious workers will wish to check their "spot diagnoses", this article also carries an addendum on handling, preservation, and labelling of material for study under less urgent circumstances.

## Basic Anatomy.

Both *C. fleckeri* and *C. quadrigatus* (and indeed all Cubomedusae) are constructed on the same general pattern. The body is more or less bell-shaped, with a hollow interior, but in contrast with most other jellyfish, the general shape is not round but rather square, as in the following diagrams.

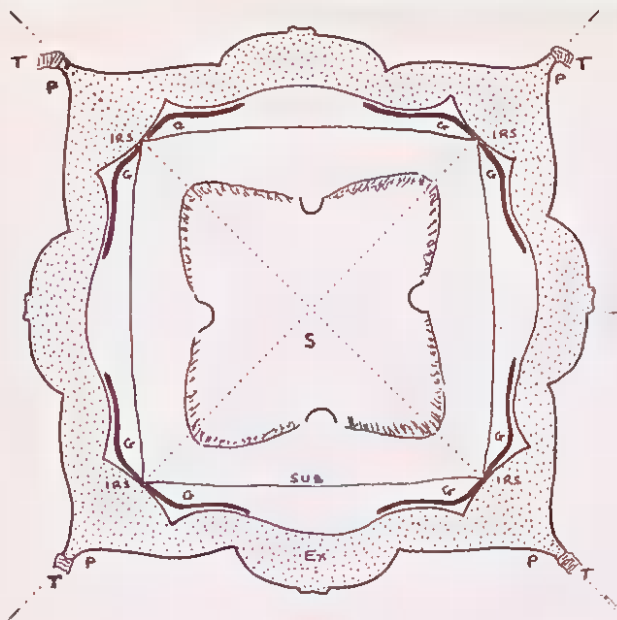


FIG. 1.

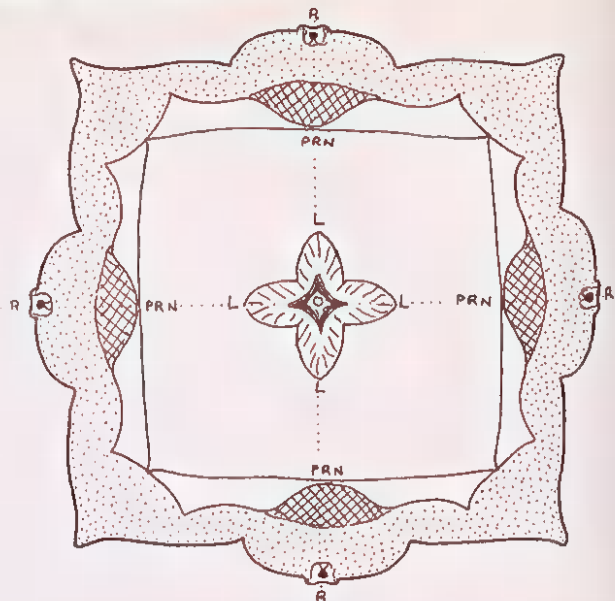


FIG. 2.

Plan drawings of the major anatomical features of *C. fleckeri* and *C. quadrigatus*, showing their relationship to the interradial and perradial. Both diagrams apply equally to either species. In actual cross-sections, the various organs would appear at different levels.

**Figure 1.** Interradial lines pass through the pedalia and the uppermost (unpaired) tentacles, also the interradial septa, and the corners of the stomach cavity.

**Figure 2.** Perradial lines pass through the rhopalia, perradial nuclei (shown cross-hatched), and the lips of the oesophagus.

Ex (shown in stipple) — exumbrella, the fleshy outer layer; Sub — subumbrella, the membranous inner layer; G (heavy lines) — gonad; IRS — interradial septum; L — lips of oesophagus; O — oesophagus; P — pedalium; PRN (hatched area) — perradial nucleus; R — rhopalium; S — stomach; T — tentacle.

Note that in figure 1, lines have been drawn diagonally, joining opposite corners. These lines are the interradial. Along the interradial lie the pedalia, those fleshy projections variously referred to as "arms", "legs" and "hands", to the branches of which the tentacles are attached. Also in the interradial are the interradial septa, formed by the fusion of the internal and external layers of the jellyfish at this point. This junction line extends vertically from the level of the pedalia to the level of the stomach and, as will be seen later, gives rise to the reproductive tissues or gonads.

The stomach is a flattened space in the top end of the jellyfish, outlined by a whitish fringe of digestive filaments. From the centre of the stomach the swallowing-tube, or oesophagus, hangs down within the cavity of the bell, ending in four petal-like expansions, representing the mouth and lips.

In figure 2 another pair of lines have been drawn, this time joining the mid-points of the opposite sides. These lines are the perradial. The most obvious structures in the perradial are the four sensory organs (rhopalia), which are the small black "eyes" part hidden inside a niche in the side wall of the jelly.

### Differentiating Features.

Although four species of multi-tentacled Cubomedusae ("box-jellyfish") have been recorded from the Australian coastline, two of these, *Chiropsalmus buitendijki*, and *Chiropsalmus quadumanus* apparently do not frequent in-shore waters, or if they do their numbers must be comparatively small. I have never seen an example of these rarities, and, as far as I know, neither has been reported in recent years.

For practical purposes, then, *C. buitendijki* and *C. quadumanus* can be ignored, and it is necessary to distinguish only between the two common species, *C. quadrigatus* and *C. fleckeri*.

### Pedialial canals.

The first, easiest, and certainly the most constant difference between *C. quadrigatus* and *C. fleckeri* lies in the shape of their pedialial canals. In both



species the pedalial canal is a tubular channel passing through the transparent fleshy pedalum, carrying nutriment from the jellyfish to its tentacles. The lining membrane of the canal is whitish and partly opaque so that its outline is readily visible, especially against a bright background.

At all sizes, in both sexes, and irrespective of other changes, the pedalial canal of *C. fleckeri* shows, in its first or proximal third, a marked expansion which extends upward in the shape of a rose-thorn (see Fig. 3, also Figs. 5 and 14.) This triangular expansion of pedalial canal, which has been called the corniculum (meaning "little horn"), is not peculiar to *Chironex*, occurring in other Cubomedusae, but it is never present in specimens of *C. quadrigatus*, at any stage.

In *C. quadrigatus* the pedalial canal has a fairly uniform bore in its horizontal course, and then bends sharply downward towards the tentacles. Its outline (Fig. 4, also Figs. 6 and 10) could be likened to an elbow or a knee. The angle of the bend is approximately one hundred degrees, but varies slightly depending upon the state of contraction or relaxation of the pedalum. Occasionally *C. quadrigatus* will show a small knob or "pimple" at the end of the first part of the pedalial canal, but this small protrusion is unlikely to be confused with the upswept corniculum of *Chironex*.

FIG. 3.  
*C. fleckeri*.

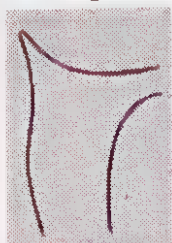


FIG. 4.  
*C. quadrigatus*.



Comparison of outlines of the proximal portions of the pedalial canals of *C. fleckeri* and *C. quadrigatus*.



FIG. 5.



FIG. 6.

In Figures 5 and 6, the jellyfish has been sliced vertically, removing all except one "wall", which has been photographed from the inner (subumbrella) aspect.

Figure 5 shows the early differentiation of the perradial nucleus of *C. fleckeri*, forming vertical ridges with undulating free margins. Gonad can be seen as whitish tissue arising from the upper part of the interradial septum, and moving towards the perradial nucleus. Note the distinctive corniculum on the pedalial canal of *C. fleckeri*.

Figure 6. The developing perradial nucleus of *C. quadrigatus* forms twin rounded bulges. Gonad is shown arising from the full length of the interradial septum, covering the perradial nucleus, and meeting its neighbour in the perradial line. Note the "knee" which is typical of the pedalial canal of *C. quadrigatus*.



### Perradial Nucleus and its Processes.

In the perradius (refer if necessary to Figure 2), just below the level of the stomach, and well above the rhopalar niche, both *C. fleckeri* and *C. quadrigatus* have a thickening in their side walls, protruding inward; and this mesogloal condensation, which I call the perradial nucleus, grows more rapidly than the other tissues of the jellyfish. Consequently, in larger specimens, it comes to form an expanding intrusion into the cavity of the bell, where it develops special shapes characteristic of the species.

In very small specimens of both *C. fleckeri* and *C. quadrigatus* (three tentacles or less on each pedalium), the perradial nucleus is of little assistance, being merely a heart-shaped mound of clear tissue. In slightly larger specimens, it rises as twin humps on either side of the perradius, and, by the time the jellies have acquired five tentacles on each pedalium, minor differences are detectable. These become very obvious as further growth occurs.

In *Chironex* at the four or five tentacle stage, conical pimple-like papillae appear on the convexity of the paired perradial bulges (Fig. 11B), and soon unite into a more or less vertical ridge, with an undulating crest (Fig. 5). With further growth, this primary ridge fans out like a coxcomb (Fig. 11C) then folds upon itself to form a whorl (Fig. 7). Later again the free margin proliferates, budding off an arborising series of stubby digitations which, in fully mature specimens, occupy most of the available space within the bell. (The extent of the perradial nucleus in large specimens is indicated by the dotted area in Fig. 11C).

In *C. quadrigatus* on the other hand, the enlarging perradial swellings show no such elaborate development. Retaining their smooth unbroken convexity and circular cross-section (Fig. 6), they simply elongate and become pendulous, like breasts without nipples (Fig. 8).

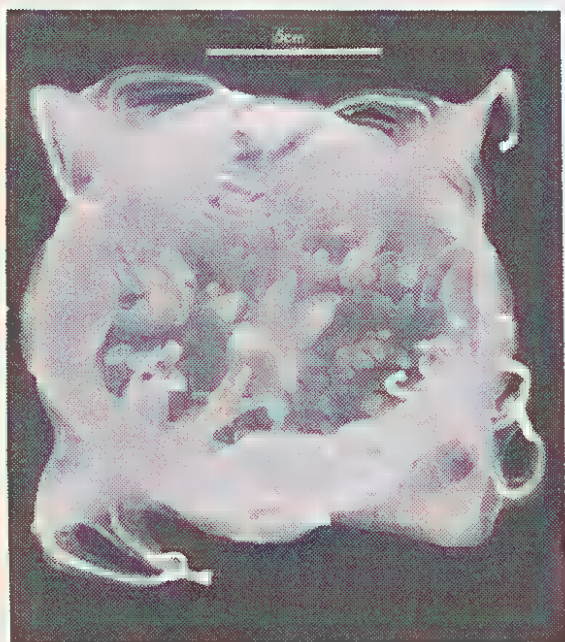


FIG. 7.

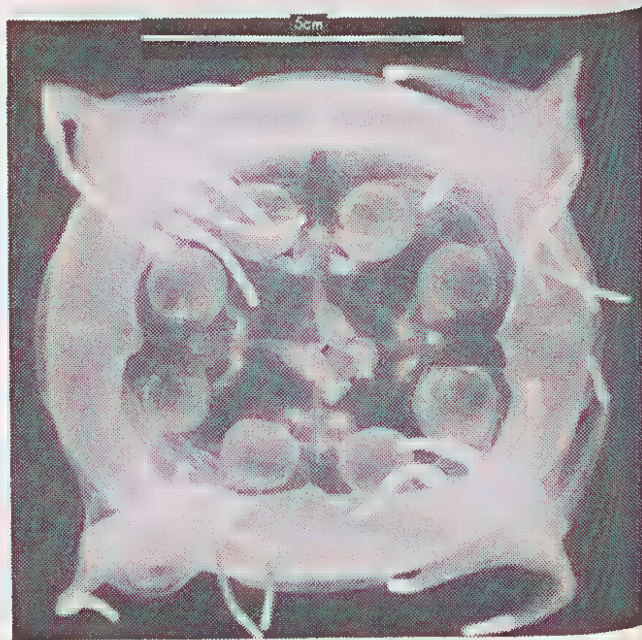


FIG. 8.

In these photos the view is upward, through the open end of the bell.

**Figure 7.** *Chironex* gonad in larger specimens ensheaths the whorls of the perradial nucleus as the latter expands from the digitations on its free margins. This specimen is about half-grown.

**Figure 8.** The perradial nuclei of *C. quadrigatus* form conspicuous rounded protrusions into the cavity of the bell. Their surfaces are smooth, and covered with a single layer of gonad tissue. The specimen is nearing full maturity.



## Gonads.

In both *C. fleckeri* and *C. quadrigatus*, reproductive tissue first appears at the interradii, originating from both sides of the interradial septa (this structure is illustrated in Fig. 1).

In *C. fleckeri*, only the upper half (or less) of the interradial septum produces gonad tissue, whose growth is directed towards the perradius (Figs. 11A and 11B). At about the 8 tentacle stage, a bridge of gonad tissue reaches the enlarging mound of the perradial nucleus (Fig. 11C), and thereafter all extensions and outgrowths from the latter form a core over which the *Chironex* gonad spreads, thereby achieving a very large area.

In *C. quadrigatus*, the gonad origin is larger, and lower, initially involving the centre half (Fig. 11D) of the interradial septum, then spreading upward and downward, until the full length of the septum contributes to its growth (Fig. 11F). Coincident with this widening of its "base", the *Chiropsalmus* gonad enlarges like a growing leaf, its convex border pushing towards the perradius, which it eventually reaches a little above the rhopalar level (Figs. 6, 11F, 15). The perradial nucleus of *Chiropsalmus*, with its mammiform expansions, stands in the path of the upper portion of the extending gonad, and is surmounted as in *C. fleckeri*, but this minor diversion adds little to the total reproductive area.

In practice, these gonadal differences can be very helpful in identifying small specimens, especially in the preserved state. Formalin preservation converts the barely visible gonad sheets into opaque whitish structures which stand out clearly against the semi-transparency of other tissues.

Thin parallel lines of gonad may be present in specimens of *C. quadrigatus* as early as the 3 tentacle stage, long before there is any differentiation of the perradial nucleus, and this early appearance and typical situation (Fig. 10)



FIG. 9.



FIG. 10.

**Figure 9.** Small preserved specimen of *C. fleckeri*, demonstrating typical shape at this stage. Although fully contracted, the tentacles are massive and robust. This jelly has five tentacles on each pedalium. The perradial nucleus is just beginning to develop, and no gonad is visible. The rhopalar lips and niches are well demonstrated.

**Figure 10.** Preserved specimen of *C. quadrigatus*, at 3/4 tentacle stage. Gonad has already formed along the interradius, from stomach to pedalial levels. The peaked appearance of the foremost pedalial canal is due to camera angulation.

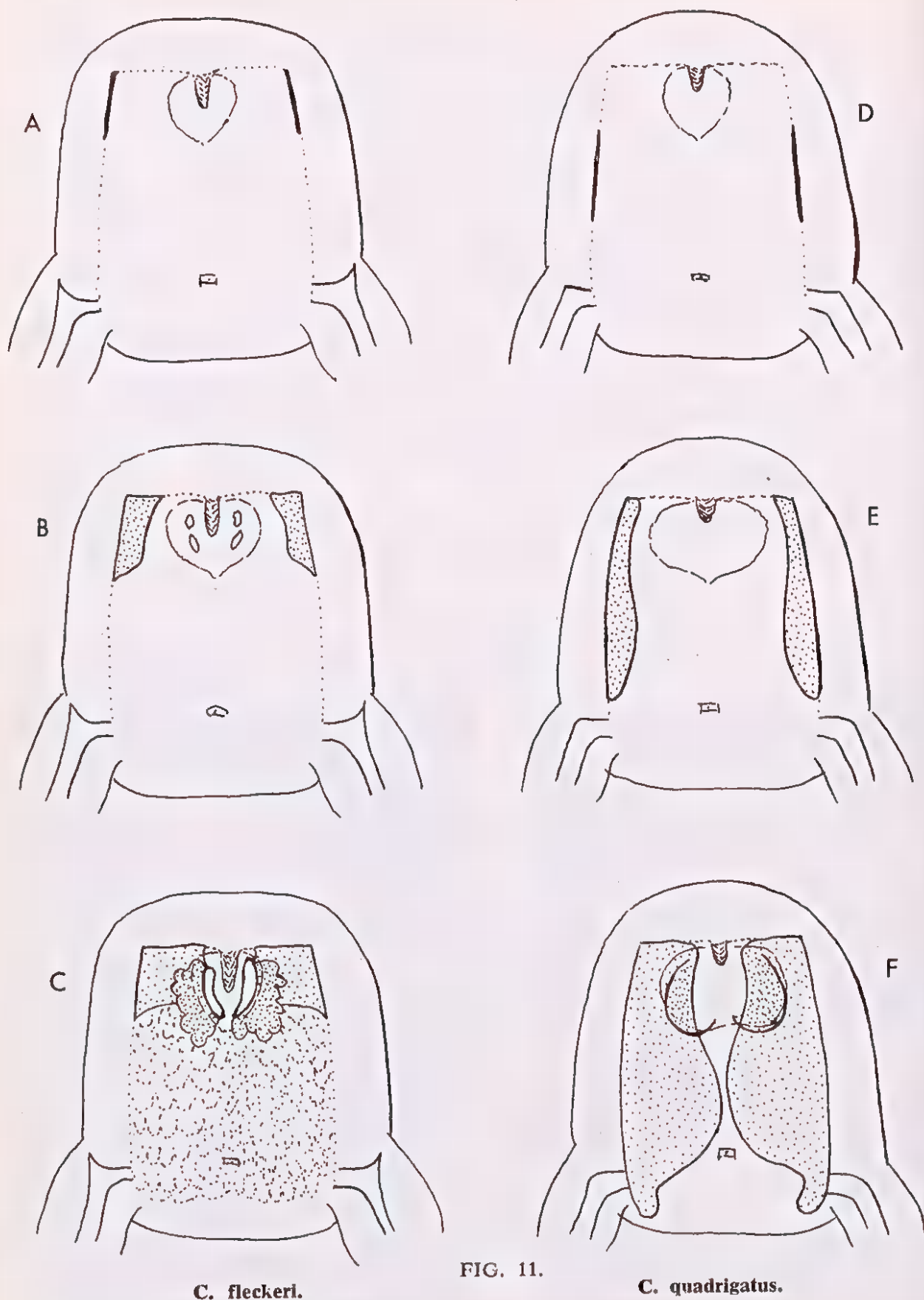
**C. fleckeri.**

FIG. 11.

**C. quadrigatus.**

Drawings A, B, and C, on the left, show the gonad of *C. fleckeri* arising from the upper part of the interradial septum (A), moving towards the perradial nucleus (B) which is developing pimple-like outgrowths. In (C) the perradial nucleus is at the "coxcomb" stage, and covered by a single layer of gonad tissue. The dotted area in (C) indicates the final extent of the processes of the perradial nucleus at full maturity.

Drawings D, E, and F, refer to *C. quadrigatus*. Gonad first appears near the middle of the interradial septum (D), then extends in all available directions (E). The perradial nucleus enlarges, producing twin convexities which are covered by gonad as the latter moves towards the perradius (F).



of gonad is good evidence when, through rough handling, the shape of the pedallial canals may be difficult to discern.

Conversely, the absence of leaf-like gonads in medium-sized preserved specimens is reasonable presumptive evidence that the species is not *C. quadrigatus*, but probably *C. fleckeri* (compare Figs. 9 and 10).

#### Other Distinctions.

Sometimes, as when diving in murky waters, it is neither helpful nor wise to approach a "box-jelly" too closely. The following points can then be useful in making a tentative identification from afar :

(a) **Size of body.** If more than four inches in size, the specimen is very probably *C. fleckeri*. *C. quadrigatus* is the smaller species, and most specimens are under four inches in width.

(b) **Colour of tentacles.** On medium-sized jellies, if all tentacles are brightly coloured, they probably belong to *Chiropsalmus*. On healthy jellies of both species, the outermost (unpaired) tentacles are bluish or purple, and on juveniles the remaining tentacles may be quite vivid shades of yellow. In larger sizes, *C. quadrigatus* often retains its yellows, but the paired tentacles of *Chironex* soon fade to a dirty greyish-white.

(c) **Width of tentacles.** Wide ribbon-like tentacles are typical of *Chironex*. *Chiropsalmus* tentacles are finer, for any given size of the body (compare Figs. 12 and 13).

(d) **Number of tentacles.** If each pedallium carries more than eight tentacles, then the jelly is probably *Chironex*. *Chiropsalmus* in these waters very rarely, if ever, carries more than nine tentacles, even at full maturity, whereas *Chironex* at full maturity has fifteen tentacles to each pedallium.

(e) **General appearance, solidarity, speed of movement.** Under similar conditions of nutrition, *Chironex* is a more robust jelly than *Chiropsalmus*, has thicker mesogloea, and a more clearly defined cuboid shape. It swims faster, and has a more solid "feel" when handled.

#### Handling live Specimens.

The outside of the bodies of *C. fleckeri* and *C. quadrigatus* can be handled with impunity, provided the tentacles are kept clear. When collecting from a net, push the tentacles aside with a stick, and grasp the apex of the jelly firmly between thumb and fingers. The extra firmness of the top of the bell makes these jellies quite easy to hold. When lifting the jelly, be sure you are up-wind from the trailing tentacles.

The same principles apply when collecting in calm water — get ahead of the movement of the jelly, let the body swim into your hands, then promptly lift upwards and away from your body. Don't forget the possible effect of tide and wind on the tentacles. Protective clothing should be worn.

In rough water use a scoop net with a long handle, or better still, observe from the beach.

Tentacles retain most of their stinging power after removal from the water, and even after many months can still cause injury in the presence of adequate moisture. Formalin or spirit destroys this power.

#### Preservation of Specimens.

In the present phase of stinger investigations, well preserved and properly labelled specimens are welcomed by most authorities, and even should you wish to retain the specimens, there should be no difficulty in obtaining expert identification.

The best preservative for all jellyfish is "Formalin" (Formaldehyde Solution B.P.)

One volume of Formalin added to every ten volumes of sea-water (including the volume of specimens contained therein) will give good preservation, and does not cause the shrinkage and distortion inevitable with Methylated Spirits — the next best choice.



FIG. 12. *C. quadrigatus*, swimming. Note the thin tentacles, and the two transparent oval areas (periradial nucleus) just below the level of the stomach. The high density at the interradial is due to collapse and rumpling of the gonad layer.



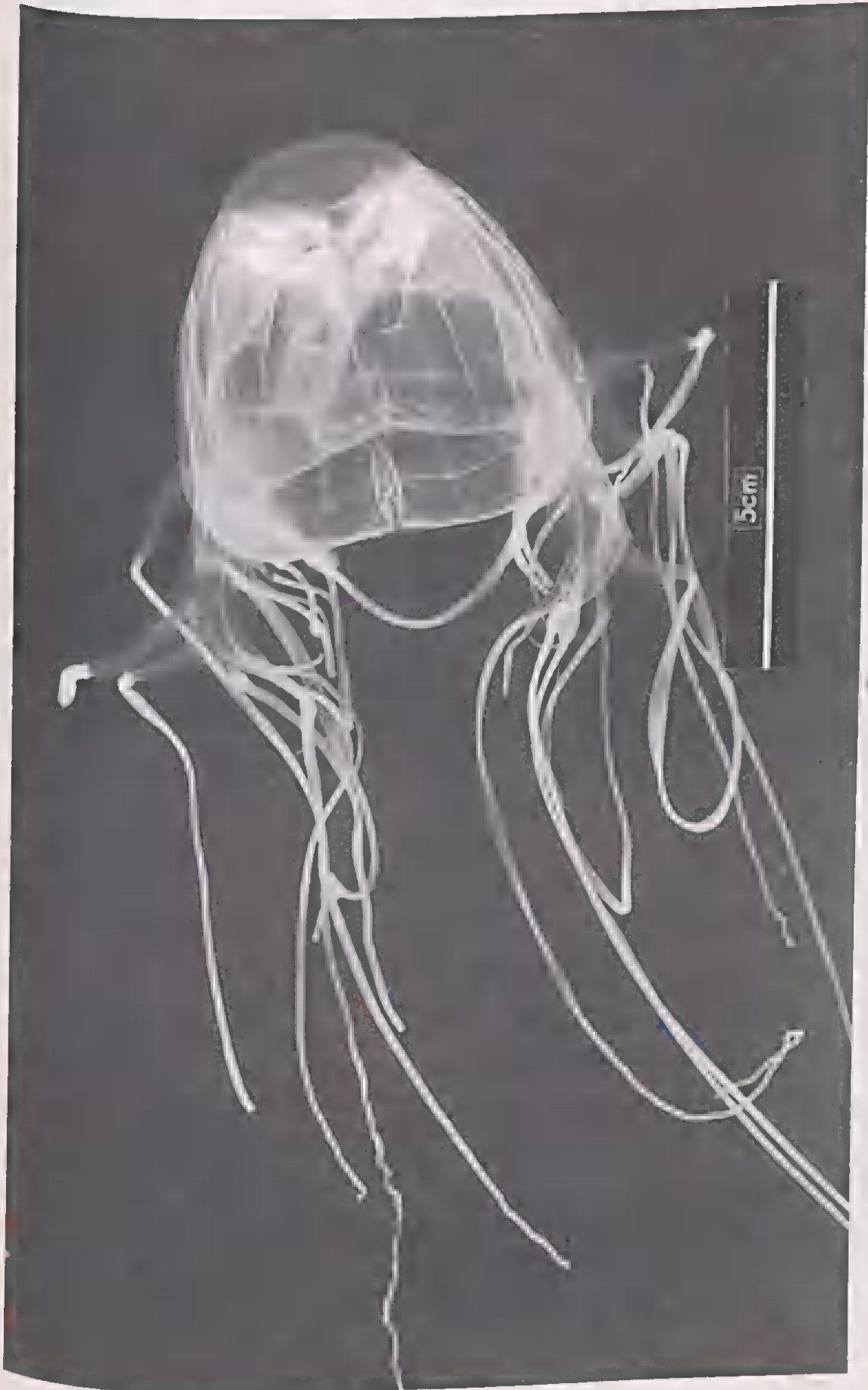


FIG. 13. *C. fleckeri*, swimming. Note the thicker ribbon-like tentacles. The gastric filaments fringing the stomach are well demonstrated. Gonad is absent except near the upper half of the interradial septum.

The container should be of glass, plastic or other material not subject to staining or corrosion. Plastic bags are satisfactory if supported in a suitable box or carton. Plastic rubbish bins are excellent for larger specimens. To prevent distortion of the specimen the receptacle should be of sufficient size to allow free movement in all directions.

For choice specimens, have the jelly swimming, then trickle the Formalin down one side of the container. The jellyfish is killed in a natural attitude, and settles slowly into the stronger layers of Formalin near the bottom.

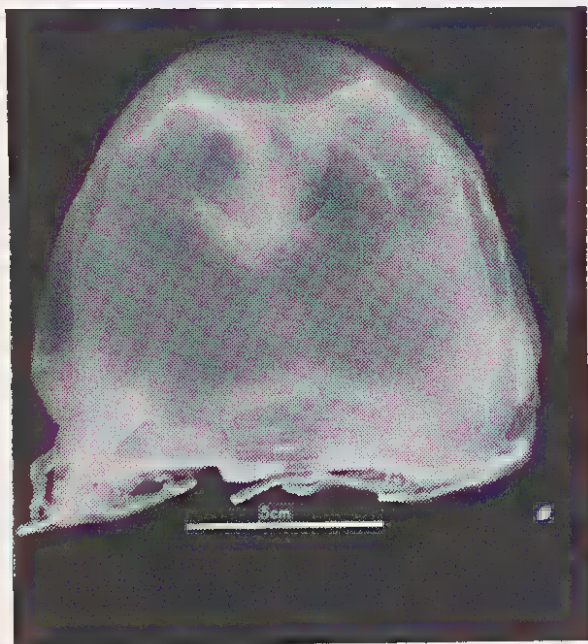


FIG. 14.

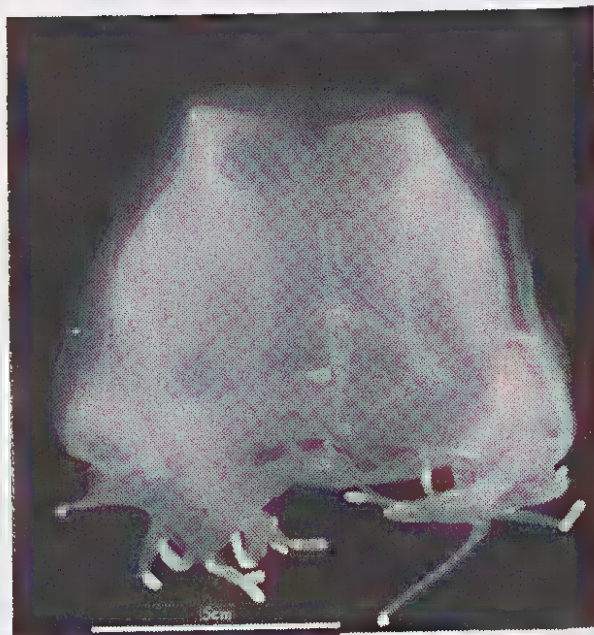


FIG. 15.

**Figure 14.** Fairly large *C. fleckeri*, in the typical contracted position produced by sudden preservation. Gonad is visible in both "shoulders", extending from the upper half of the interradial septum to the perradial nucleus. Note the shape of the base of the perradial nucleus, like two beans facing each other.

**Figure 15.** Large *C. quadrigatus*, preserved in contracted posture. Gonad leaves reach the perradius a little above the rhopalium. The base of the perradial nucleus is very wide. Tentacles have been removed from both specimens.

### Labelling.

A specimen without collection data loses most of its value. Efficient labelling is simple. The essential information is "Where collected", "When collected", and "Collector's name". Other interesting details are always welcome. Write with carbon pencil (not ink or biro) on good quality paper. Place this paper with the specimen, **inside the container**. Here it will not be damaged or lost, but will be preserved indefinitely, probably outlasting the specimen.

**Author's Note.** Usage of the names *C. fleckeri* and *C. quadrigatus* herein is in conformity with other recent Australian writings. Should the minor departures from original descriptions necessitate nomenclatural adjustment, sufficient description has been provided to ensure correct interpretation.

The work here reported has been supported by grants from the Cairns Junior Chamber of Commerce, the Department of Harbours and Marine, Queensland, and the National Health and Medical Research Council, Australia.



— NOTES —

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## EDITORIAL

Since our last journal, the Club has been active in various ways. In September the Club put a float in the "Fun In The Sun Procession". This was a great success and helped to draw the attention of the townsfolk to our Club and its activities. On the same day, members of the Bird Observers Club were entertained with a slide evening and social hour. The Bird Observers Club members came from all parts of Australia and were here on their Annual Bird Campout. Next day members of both Clubs made a trip to Port Douglas which was very rewarding. Others went to Michaelmas Cay but unfortunately this trip was not a great success owing to the weather which prevented them from landing on the Cay and really studying the birds there.

Entertainment at the meeting continues to be of an improved standard and in view of this it is disappointing to see so few local members taking part. The same can be said of the Field Days, much of interest is seen and learnt, but all too few members are there to benefit.

We are still looking for Finger Cherries for The Defence Standard Laboratories at Ascot Vale, Victoria. If any member can get hold of any of these fruits, please send them, plus leaves and stalks, to the above address, taking care not to rub off any "bloom" found on the fruit.

Mr. M. I. Nikitin of P.O. Box 165, Fairfield, Sydney N.S.W. would like someone, preferably from the North of Australia, to correspond with him on the subjects of butterflies and dragonflies.

Anyone wishing for further copies of this Special Feature journal, may obtain same for the price of 5/-. Send to Secretary, Box 991, Cairns.



### POT POURRI.

#### A DEADLY MEAL.

A Kookaburra tried to make a meal of a green tree snake. However, after swallowing all but a foot of it, the bird died. No winners in this match.



#### RED BACKED SPIDERS.

It is now thought that our Red Backed Spiders are the same species as The Black Widow of America and have been renamed *Lactrodectus mactans*. A couple of these spiders plus three egg sacs were collected to send South for study. Before getting South, one sac hatched — about 500 little spiderlings and the owner, not thinking, took off the top of the bottle, to have small redbacks happily climbing all over the house. Let us hope he was able to deal with all of them, or his wife may not be too happy about it.

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## CLUB HANDBOOKS

Check List of North Queensland Orchids, 1964 (In course of Revision).

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# THE NORTH QUEENSLAND NATURALIST



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"Each Author is responsible for the opinions and facts expressed in his or her article".

## NORTH QUEENSLAND NATURALISTS' CLUB

Founder Presd. the late Dr. HUGO FLECKER.

**OBJECTS** — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

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**GENERAL MEETING** for discussion, lectures, screenings and display of specimens are held on the second Tuesday, 8 p.m., at the Old Kuranda Barracks, Esplanade.

**FIELD DAY** excursion Sunday prior to meeting.

**VISITORS** are welcome, especially members of Australian and Overseas Clubs and Societies.

**LIBRARY** open each Club Night and by arrangement with Librarian.

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# NORTH QUEENSLAND COLEOPTERA — THEIR FOOD AND HOST PLANTS

## PART III

By J. G. BROOKS, B.D.Sc., F.R.E.S.

Since Part II was published some years ago, the field of collecting has been extended to embrace the Running River and Mt. Spec in the Paluma Ranges, north of Townsville.

**YELLOW JACKET.** *Eucalyptus ochrophloia* F.v.M.

Family BUPRESTIDAE. — *Stigmodera*, *Themognatha saundersi* Waterh. *Stigmodera*, *Castiarina carinata* Macl. *Stigmodera*, *Castiarina cinnamomea* Macl. *Stigmodera*, *Castiarina doddi* Cart. *Stigmodera*, *Castiarina horni* Kerr. *Stigmodera*, *Castiarina maculiventris* Macl. var. *strandii* Obenb.

Family SCARABAEIDAE. — *Eupoecila australasiae* Don. *Chlorobapta tibialis* Lea. *Trichaulax philipsii* Schr. *Polystigma punctata* Don. *Clithria eucnemis* Burm. *Glycyphana brunnipes* Kirby. *Cacochroa decorticata* Macl. *Cacochroa obscura* Blkb. *Cacochroa variabilis* Macl. var. Lea.

Family CERAMBYCIDAE. — *Pytheus jugosus* Newm. *Telocera wollastoni* White. *Stenocentrus ostricilla* Newm. *Chlorophorus curtisi* L. & G. *Syllitus grammicus* Newm. *Sisyrium apicale* Cart.

Family CLERIDAE. — *Eleale sellata* Pasc.

All the above mentioned beetles are blossom feeders.

**RED STRINGY BARK.** *Eucalyptus resinifera* Sm.

Family CHRYSOMELIDAE. — *Cryptocephalus iridipennis* Chap. *Chariderma pulchella* Baly. *Cadmus crucicollis* Boisd. *Cadmus excrementarius* Suffr. *Cadmus sculptilis* Chap. *Brachycaulus colossus* Chap. *Paropsis lutea* Marsh. *Paropsis maculata* Marsh. *Paropsis variolosa* Marsh. *Paropsisterna octomaculata* Marsh. *Paropsisterna sexpustulata* Marsh. *Chrysophtharta cloelia* Stal.

Family CURCULIONIDAE. — *Mylocerus neveux* Lea. *Onyops fasciculatus* Redt. *Gonipterus suturalis* Gyll. *Fergusonia cristata* Lea.

Family BUPRESTIDAE. — *Nascio simillima* Poll.

Family SCARABAEIDAE. — *Anoplognathus boisduvali* Boisd. *Liparetrus atriceps* Macl. *Liparetrus laciniatus* Lea. *Liparetrus ventralis* Lea. *Maechidius hopeanus* Westw.

The specimens from this plant were taken from either the foliage or the bark.

**MALLBAN.** *Aphananthe philippinensis* Planch.

Family BUPRESTIDAE. — *Metaxymorpha gloriosa* Blkb. *Stigmodera*, *Castiarina venusta* Cart.

Family CERAMBYCIDAE. — *Xylotrechus australis* L. & G. *Xylotrechus reginae* Auriv. *Chlorophorus curtisi* L. & G. *Chlorophorus curtisi* L. & G. var. *fristedti* Auriv. *Aridaeus heros* Pasc. *Aridaeus princeps* Cart. *Merionoeda australiae* Lea.

Family SCARABAEIDAE. — *Lomaptera cinnamomea* Thoms. *Lomaptera pulchripes* Thoms. *Eupoecila australasiae* Don. *Lyraphora velutina* Macl. *Polystigma punctata* Don.

This tree rarely blossoms, but when it does it carries a large variety of beetles.

**PEACH-LEAVED POISON TREE.** *Trema aspera* Blume.

Family CURCULIONIDAE. — *Pantorrhypes stanleyanus* White. *Baris amoenula* Boh.

The beetles are foliage and bark feeders.

**GUM-TOPPED BOX (Grey Box).** *Eucalyptus hemiphloia* F.v.M.

Family BUPRESTIDAE. — *Calodema regalis* L. & G. *Metaxymorpha gloriosa* Blkb. *Curis viridicyanea* Fairm. *Stigmodera*, *Themognatha mac-*

## NORTH QUEENSLAND COLEOPTERA — THEIR FOOD AND HOST PLANTS — (Continued)

farlani Waterh. Stigmodera, Themognatha regia Blkb. Stigmodera, auricollis Thoms. Stigmodera, Castiarina campestris Blkb. Stigmodera, Castiarina carinata Macl. Stigmodera, Castiarina Cinnamomea Macl. Stigmodera, Castiarina deleta Kerr. Stigmodera, Castiarina erubescens Blkb. Stigmodera, Castiarina rollei Kerr. Stigmodera, Castiarina triguttata Macl.

Family CERAMBYCIDAE. — Stenocentrus ostricilla Newm. Telocera wollastoni White. Aridaeus heros Pasc. Aridaeus princeps Cart. Trago-cerus formosus Pasc.

Family CLERIDAE. — Phlogistus sculptus Macl.

Family SCARABAEIDAE. — Lomaptera cinnamomea Thoms. Lomaptera pulchripes Thoms. Dilochrosis balteata Voll. Dilochrosis browni Kirby. Eupoecila australasiae Don. Chlorobapta frontalis Don. Lyraphora velutina Macl. Ablacopus taeniatus Sch. Ablacopus trapezifer Thoms. Cacothroa obscura Blkb.

All taken from blossom.

**WATTLE.** *Acacia cinclinnata* F. Muell.

Family BUPRESTIDAE. — Cissels inflammata Cart. Melobasis apicalis Macl. Melobasis purpurascens Fab.

Family CHRYSOMELIDAE. — Stethomela discorufa Lea. Stethomela fulvicollis Jac. Calomela crassicornis Fab. Dicranostern aeraria Chap.

Family CERAMBYCIDAE. — Ancita antennata Pasc. Ancita crocogaster Boisd.

Family CURCULIONIDAE. — Myllocerus echinatus Lea. Myllocerus speciosus Blkb.

Foliage or bark feeders.

**BLACK SHE OAK.** *Casuarina suberosa* Ott. et Dietr.

Family BUPRESTIDAE. — Agrilus australasiae L. & G. Germarica illiputana Thoms. Astraeus samouelli Saund.

Family CHRYSOMELIDAE. — Rhyparida limbatipennis Jac.

Family CICINDELIDAE. — Distypsidera flavipes Macl.

Family CURCULIONIDAE. — Belus bison Blkb. Tyrtaeosus marjorinus Lea.

Family TENEBRIONIDAE. — Bolbophanes varicolor Cart. Hemicyclus reaumuri Cast.

Taken from the foliage or bark.

**Alstonia muelleriana** Domin.

Family CERAMBYCIDAE. — Porithodes pustulata Cart. Dihammus artius Oll. Meton tropicus Pasc. Disterna mastersi Pasc. Cairnsia cowleyi Blkb.

Feeding on the trunks of the burnt shrubs following a bush fire.



## ANTS ON THE BEACH

After rather a rough sea from the North East, the receding tide left a wavy black line along the sand at Machan's Beach; for about 200 yards South of Redden's Creek and opposite its old mouth.

On examination there were millions of  $\frac{1}{4}$ " insects with transparent wings, which looked like swarming ants.

Specimens were taken to Dr. Barnes and Q.A.T.B.

AILEEN TAYLER, Machan's Beach.



## INGENIOUS PROPAGATION.



Flies attracted to the spore-bearing cap of the 'stinkhorn'. Dark cells of the 'honeycomb' are filled with a viscous fluid having an objectionable smell which attracts the flies.

Nature uses many devices to ensure the continuance of the species, and the fungi demonstrate her versatility in this regard. Mushrooms drop their spores, which in time become the 'fairy rings' so beloved of children. Puffballs explode, — scattering their spores to the wind to carry away to a suitable seedbed.

The "Stinkhorn" however, appears to have brought its method of propagation to the summit of perfection. Lacking in Chlorophyll, all fungi are deprived of the means of photosynthesis which enables their higher relations to manufacture their own food, and a prime essential for the existence of a fungus is a locality where plant-food suitable to its requirements is available. Rotting vegetation, decaying wood and trees, decomposing vegetable matter, — all these provide ideal sites for future fungi.

The beautiful fungus shown in the photograph, delicately veiled in a gown of finest lace, emits a powerful and nauseating odour which attracts blowflies. The life-propagating spores are contained in a mucous in the cellular head of the plant, and the flies, attracted by the unwholesome smell, get the spores on their feet when they visit the plant. Being blowflies, their next port-of-call is another mass of rotting vegetation and here the spores are wiped off, — to lay the foundation of yet another generation of this interesting Northerner.

JOHN ORRELL.

## RAINFORESTS

This paper is to discuss Rainforests — what they are, why they grow here and where they came from.

First. What is a rain forest? A laymans definition might be that it is vegetation that is always infernally wet, that has stinging trees and carries pests like leaches and ticks. For this we can sympathise. But the Biologist, or more particularly the Ecologist, who studies the inter-relations between plants and animals and their environment, prefers to study the fundamental nature of things and so he attempts to classify rain forest according to its most natural, or what he believes to be its most typical characteristics. Thus, to him, rainforest, as distinct from eucalypt forest, is an agglomeration of broad-leaved trees of many species growing in a humid environment and forming a closed canopy of leaves so that the understages or the inside of the rainforest is always in deep shade and can support such plants as epiphytes, ferns and orchids and lianas of various sorts.

This is just a very broad and general definition and it should be remembered that it encompasses a number of types of rainforest. In Australia for example, we have four types — tropical rainforest, subtropical rainforest, temperate rainforest and mossy forest.

We can define these types of rainforest either according to their structure or life form or the species that compose them. Either way, the answer comes out pretty well the same. Taking the types one at a time, tropical rainforest is characterised by high forest with many lianas and lawyer vines, few epiphytic ferns and orchids and a ground flora of little else than dead fallen leaves. When on the ground, it is usually possible to see a good way through this kind of forest if the ground is level. Tropical rainforest has the richest composition of tree species of any of the rainforest types. They represent most families of flowering plants and the preponderance of certain families depends on the region of the world. Thus in Borneo, Dipeccarps and Leguminous trees characterise the lowland forests, while in Australia, trees of the families Rubiaceae, Sapindaceae and laurel family are most prevalent.

Even though sporadic in its distribution, tropical rainforest is still probably the most widespread rainforest type in Australia. It occurs in patches through the northern part of the Northern Territory, it lines the watercourses throughout the whole of northern and northeastern Australia and it extends in patches from the tip of Cape York south to Yeppoon and Gympie on the east coast of Queensland but only below 2000 feet. Above that altitude in these regions, it grades into sub-tropical rainforest, the type which I propose to discuss next.

The thing first noticed about subtropical rainforest is the relatively rich ferny and shrubby undergrowth or substage. This should not be confused with secondary or marginal rainforest growth with its tangle of lawyers, stinging trees, lantana etc, and in particular, its open canopy. The very reason why secondary rainforest is always so tangly in the understory or substage is simply because the tree canopy above is open and lets in plenty of light for the weedy shrubs to grow in profusion.

Getting back to virgin subtropical rainforest, it still possesses plenty of lianas and creepers, but the forest canopy is slightly to a good bit lower in height than that of the true tropical rainforest. In Australia, the dominant tree families in subtropical rainforest are Cunoniaceae, (Ceratopetalum cordwood in N.S.W. — and Schizoneria) Myrtaceae, an example being the maple, Flindersia and the Monimiaceae, comprising various species of Sassafras.

Subtropical rainforest occurs right down the Eastern seaboard of Australia



## RAINFORESTS — (Continued)

from the ranges behind Cooktown and Mossman to sheltered coastal gullies in southern New South Wales. It barely crosses the Victorian border. In north east Queensland it is found over a wide area of country, ranges and plateaus between above 2 and 4000 feet. As one goes south, it becomes increasingly patchy in occurrence. In south Queensland, it ranges from above 1 to a little over 3000 feet; in northern New South Wales from near sea level to 3000 feet; and in southern New South Wales where it does little more than snake up along moist sheltered coastal creeks into the ranges, it is found from sea level to about 2000 feet. At about 3 - 4000 feet in New South Wales and southern Queensland it merges with the temperate rainforest above. At about 4000 feet in North Queensland it merges into the peculiar cloud forest which has its affinities with the high mountain flora of New Guinea.

The temperate rainforest is characterised simply by its rich ferny sub-stage, general absence of lianas or climbers, and few dominant tree species. In fact, the only dominant trees worth noting are the Antarctic Beech (*Nothofagus*) and the Victorian Sassafras (*Atherosperma*).

In Australia, temperate rainforest occurs in isolated pockets of the tops of the MacPherson Range in South Queensland and the top sheltered eastern slopes of the New England, Battington and Southern Tablelands in New South Wales. Here the altitudinal range is 3 - 4000 ft. As we go south however, as we all know, the temperatures get colder, and by the time we get to Victoria, it is now too cold for subtropical rainforest to grow anywhere, and so the temperate rainforest takes over as the only rainforest type known in that State. It still however, occurs only on moist sheltered gullies, such as in the Dandenong and Warburton Ranges outside of Melbourne between the altitudes of about 500 to 3000 feet.

In Tasmania likewise, the only rainforest to be found is of the temperate type. However, as well as the Beech and Sassafras, many of the dominant trees are conifers which incidentally, such as the celery-top pine, are often related to pines found in the high mountains of New Guinea. In Tasmania, temperate rainforest occurs at all altitudes from sea level to 2½ - 4000 feet wherever it is moist enough for it to occur. Above that altitude it becomes too cold and an alpine tundra type vegetation takes over. The rainforest, however, is particularly widespread along the wild west coast and on the southwest corner reaches a profusion of stunted forms unequalled elsewhere except perhaps on the high north peaks of Bellenden Kerr and Bartle Frere.

The peculiar feature of the high north Queensland peaks is that they have no Antarctic Beech. This is particularly surprising as beech occurs in both the high mountains of New Guinea and South-east Australia, and although several ideas have been advanced about it, no one has yet come to light with any concrete explanation.

Notwithstanding this gap, the cloud forest of the north Queensland peaks have their closest affinities with the cloud forests of New Guinea. The most well-known indicators of this link are of course the two ericaceous plants, *Rhododendron*, and *Agapetes*, both of which belong to strictly northern hemisphere plant families. In the high mountains of New Guinea, both *Rhododendron* and *Agapetes* run to a profusion of forms. It has been estimated that there are 300 species of *Rhododendron* alone in New Guinea. In Australia, however, we have only one species of these genera, and for those of you who don't know what they look like, they are both climbing shrubs on mountain tops over 4000 feet high and when in flower carry small clusters of showy crimson tubular flowers.

The Australian cloud forests are fascinating to see and walk about in,



## RAINFORESTS — (Continued)

as I found myself when visiting the true summit area of Mt. Lewis near Julatten. While the forest canopy is still completely closed, the whole forest has a stunted wind-blown look. The average height of the forest trees is only 30 - 50 feet and while there is still relatively little undergrowth below, the forest is fairly difficult to walk through because the trees grow so close together. Ground rocks and tree trunks are pretty well smothered in mosses and ferns. Cloud forest is also perennially damp, and though it may not rain every day cloud or mist nearly always descends on to the tops of the peaks most afternoons. With the cloud descending and the wind whipping along the ridge crests, the forests are not the cosiest to be alone in; but when the sun shines, you feel it must be the most beautiful and far away place in the world, almost like a fairy land. A few male Riflebirds and Golden Bowerbirds flitting about the trees certainly enhances this impression.

As I have said this forest type can only be found on isolated peaks reaching above 4000 feet in north east Queensland.

So far I have emphasised that the distribution of the various types of rainforest in Australia is patchy and I now propose to consider the physical factors — such as moisture, temperature, wind, soil and land topography — which cause this.

Firstly, we all know that rainforest needs rain and plenty of it. It has been determined that you will not find rainforest anywhere in Australia except in sites that get over 50" per annum, unless along a creek or river bed where permanent water is assured.

Now when a biologist talks about rainforest needing moisture, he doesn't just mean rain, but a whole lot of aspects as well, such as the water holding and giving capacity of the soil and the moistness or dryness of the prevailing winds. I can explain this more easily if we turn around and look at water from a tree's point of view rather than our own. One of the first things to bear in mind is that in rainforest, with all its luxuriant growth, there is a tremendous competition for water — every single plant in the forest needs it. Secondly, the rainforest plants aren't interested in rain or condensation from mist and dew itself, but only after this water gets into the soil for then the roots can get at it.

Most epiphytic or tree climbing orchids and other epiphytic plants can absorb moisture from the air, as in mist, but these are rarely very prevalent even in rainforest. Water literally is the life blood of a plant. Once it is imbibed by the roots, it travels up the stem or trunk to the leaves. The leaves are the respiring and breathing apparatus of the plant and in them the water hands over the ground minerals it has dissolved on the one hand and on the other it is used with carbon dioxide from the atmosphere to make carbohydrates for energy and food for the plant by the process of photosynthesis. I mentioned that the leaves served as the breathing apparatus for the plant and for this they have microscopic perforations known as stomates. These allow the natural gases that make up our air to pass into the leaves and by the same token allow the water to evaporate from the leaf. This process of water in through the roots, up the stem and then out through the leaves is known as transpiration. As far as our plant is concerned, when the water supply about the roots matches or even exceeds the rate of transpiration, every thing is okay. But if there is insufficient water in the ground from rain, or if the soil holds the water so that the plant has to struggle to "suck" it in, or if the evaporation from the leaves under pressure from strong drying winds exceeds the rate at which the roots can pull in water, then things get a bit grim and the plant begins to wilt. If any of these circumstances or a combination of them persists for any length of time, the plant usually dies.

D. SCHODDE, Canberra.

(To be Continued in Next Issue.)



## THE EMPERORS.

The Emperor Penguin (*Aptenodytes fosteri*) of the Antarctic coastline and the King Penguin of Macquarie Island are the two largest species of this bird.

When first encountered the size of the Emperor astounds most visitors to the Antarctic. It is a large bird weighing up to 70 lbs. and having an erect height of three feet, six inches. Unlike the smaller Adelies they nest on floating ice or on the ice covered shore. The rookeries on the mainland ice are more or less permanent but those on the floating sea-ice or on shelf-ice, disappear each summer, which accounts for the fact that very few Emperor Rookeries have been discovered. In fact only seven are known to exist on the whole Continent although it is obvious that there are many more.

There are two fairly close to Mawson, one at Taylor Glacier, about 70 miles west of the station and another called Auster Rookery about forty miles to the east. The nature of these sites differ; Taylor being permanently established ashore in the shelter of a glacial valley beside the ice wall of the glacier itself and Auster being established, or rather re-established each year on sea ice offshore.

Huge grounded icebergs and rocky islands provide some shelter to the Auster Rookery. Several years before our visit to Auster, another rookery was sighted from the air only a mile or so from there, and was named Beaver. During 1961 we were fortunate enough to rediscover it. Whether it existed during the intervening years, is not known.

During our term we made several trips to these rookeries by dog sledge, Snotrac, and by motor cycle, in order to continue our biological studies. We were very anxious to reach Auster early in the breeding season but unfortunately the young sea-ice was repeatedly broken up by severe blizzards and one early attempt ended in failure when the sea-ice gave way to open water. The dog-team parties were in great danger as they raced back to Mawson before an ice breakout cut them off.

The next attempt, made several weeks later resulted in success although almost ended in disaster when a blizzard destroyed the tent of one party forcing them to make a hasty non-stop dash for home. To stop would have meant death in the drift laden wind and the intense cold at this time of the year.

During each visit a count was made and mortality figures determined. Specimens were captured for return to Australia. Those required for mounting in museums were humanely killed and deep frozen until dispatch. This obviously was no great problem.

The Emperors arrive at the coastline in March and April, crossing the many miles of frozen sea by walking and tobogganing. The young are reared under conditions of incredible hardship, being born in wintertime when the temperatures are from 60 to 70 degrees Fahrenheit below freezing. There is very little light and raging blizzards sweep from the Plateau.

As one could expect, the mortality rate is very high; only about one fifth of the eggs surviving.

Courtship commences on arrival and after two months of mating a single egg is laid. After the initial excitement when the egg arrives, the male takes over the job of hatching within twenty four hours or so, and the female heads for the sea again, to return when father has almost completed this duty.

The egg rests on the feet of the male bird, covered by a pendulous fold of skin which develops before the egg arrives. Incubation takes two months and in late June or early July the female returns, fat and sleek to relieve her fasting mate. Then after the hatching it is his turn to return to the sea to satisfy his hunger.

The chicks take much longer to mature than those of the Adelies so by

## THE EMPERORS — (Continued)

being born in midwinter they are ready for their first seaward journey when the ice breaks out in the summer.

The chicks are fed by regurgitation from the female only at first but when the male bird returns from the sea after breaking his long fast, both parents are required to feed the hungry young.

Usually there are tide-cracks and seal holes close to the rookery, through which the adult birds plunge in order to fill their food pouches with shrimps and planktonic creatures.

Late in October the young birds are sufficiently mature to be left by both parents as they seek food, but instead of each chick standing exposed and alone, they form tightly packed groups or creches, for protection and warmth.

How each parent is able to identify its own offspring, which it appears to be able to do, is only one mystery of the many surrounding the living habits of these mysterious and noble birds.

G. MASLEN.

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## THE SAW FLIES.

About the end of March, the larvae of some insects were found in clusters at the tips of leaves of the white paper-bark ti-tree. They were closely lined up side by side, on each side of certain leaves, feeding almost mouth to mouth at the leaf edge. At the approach of any disturbing object, they all reared up their long-spiked tails in a menacing gesture. The spikes, however, proved to be softly flexible to touch and incapable of causing harm.

Two clusters on their twigs were placed in a jar. Some escaped and were lost before a definite count was made, but the remainder numbered twenty-four.

From time to time individuals moved about, withdrawing from the group to take a little exercise, it seemed, occasionally resting apart to cast their skins. Then they would rejoin a group to feed again, or one would begin to eat at the tip, or rarely the side, of a fresh leaf, where in due course it would be joined by other wanderers. No group movement was ever observed.

Within ten days all the larvae on the tree had disappeared, perhaps having pupated, been eaten by birds, or simply moved too high up to be seen. But those in the jar continued to feed, to cast their skins (though with scarcely any appreciable growth), to move about and re-group in progressively smaller and more scattered groups, and one by one to die. Every two or three days, one or sometimes two would be found lying on the bottom of the jar, looking dark and slightly shrivelled. (Lack of water should not have been the cause as the fresh leaves were always supplied wet). By the end of April only seven were left.

However, these seven had grown a little, being about  $\frac{3}{4}$  of an inch long, and were a healthy shiny light green, all but one which had a pinkish tinge. During the next two weeks they gradually became dull and ceased to eat. One chewed a little place for itself in a fold of the paper lining the jar; others chewed "saw dust" from the piece of bark which was also supplied; but they seemed to have retired mainly beneath the paper which was (and is) resting on a layer of sand. The last larvae was last seen on May 15th.

On June 10th, three "flies" had emerged. The bark, paper and sand have not yet been disturbed in case more are to come.

K. J. MORRIS. — 11/6/64.

These insects were identified by the Sydney Museum as "Saw Flies".

EDITOR.



## EDITORIAL.

With the end of the Clubs year in sight it is fitting at this point to review some of our activities over the last 12 months.

Conservation has been one of our main interests this year and several blows have been struck in this cause.

In June, Mr. Roff, Chief Fauna Officer of Queensland, gave a very interesting talk on Conservation to a well filled hall. He emphasised that the greatest threats to our countryside was the opening up of new land for industrial purposes thus destroying animal habitat. Bush fires also contribute greatly to the destruction of our fast diminishing forests. This was a Public Meeting and it was gratifying to see a good number of non members there.

Mr. Ray Jones, Member for Cairns, has been approached to help us in our fight and has willingly agreed to give us his support. Mr. Wallis-Smith of the Tablelands is also adding his voice in Parliament.

We have in hand a scheme for encouraging ■ love of nature in the young people and are supplying lecturers to talk on their particular subject with illustrations if possible, to any youth group who asks us. Already a couple of lectures have been given and enjoyed by the youngsters.

In the coming year we will continue with our efforts to preserve our Flora and Fauna and country members can be assured, their subscriptions are helping us greatly in this fight for our land and its plants and animals

Field Days are proving very instructive and enjoyable. One of these was a trip to a tributary of Behana Creek with the object of collecting and identifying freshwater fish. Nine different species were collected and identified. Quite a remarkable achievement.

Lectures at the Meetings have been of a high standard. One was by Mr. Greg Anderson on "Conservation of Fishes", another by Miss Tailby on "Paragenesis of Rocks" and the last one of the year by Mr. Graham Pizzey on "Cape Barren Geese of the Bass Straits". In addition some excellent nature films have been shown.

Mr. Len Brass, Botanist with the Archbold Biological Station of the American Museum of Natural History, is retiring in the near future and may possibly come to live in Cairns. He has requested that if this is the case, he be allowed to take charge of the Herbarium. If Mr. Brass comes here, he will fill the Clubs great need for a botanist, a position that has been vacant since the death of Dr. Flecker.

With your continued assistance and support we can carry on this work and really help the cause of Conservation.

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# THE NORTH QUEENSLAND NATURALIST



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“Each Author is responsible for the opinions and facts expressed in his or her article”.

NORTH QUEENSLAND NATURALISTS' CLUB

Founder Presd. the late Dr. HUGO FLECKER.

OBJECTS — The Furtherance of the Study of the various branches of Natural History and the Preservation of Our Heritage of Indigenous Fauna and Flora.

Club Officers — September 30, 1965 to September 30, 1966

President : A. J. CASSELS, Esq.

Hon. Secretary : Mrs. M. L. CASSELS      Hon. Treasurer : Mrs. M. MEARS.

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## RAINFORESTS

(Continued From Previous Issue.)

With this theory behind us, we can now understand the relationship between rainforest and its physical environment in much truer perspective. As a whole, rainforest is very susceptible to any stresses in its water supply, and will only be found where none of the factors I have just mentioned is limiting.

Take wind for example. The prevailing winds in the north-east Queensland, whether, they are the S.E. trades or N.W. monsoon, are mostly moist. The rainforest here is distributed in higgledy piggledy fashion on all sides of the mountains and valleys, wherever rainfall precipitation is high enough.

In south-eastern Australia however, rainforest is only found on the eastern sheltered slopes of the mountain ranges. This is because the winter prevailing wind is a westerly wind which blows straight across the continent and comes out pretty dry by the time it gets to the Great Dividing Range. The rainforest simply cannot stand up to it.

Cold temperature does not limit the growth of rainforest providing it does not reach snow conditions and is fairly uniform all year round. In western Tasmania, rainforest, though poorer in species, grows almost as luxuriantly as it does in many parts of highland New Guinea. But in places where variations in temperature are extreme, such as frost pockets on the tablelands of southern Australia, no rainforest will ever grow.

Rain itself plays an obvious part in the distribution of rainforest. As I have mentioned, patchy occurrence of rainforest on some hill slopes and its absence on others simply show the hills that pick up the rain and the hills that miss it.

I also mentioned earlier that rainforest did not grow in less than 50" of rain per annum. But there are many parts of Australia which receive more than 50" p.a. and which do not grow rainforest. Why is this? There are a number of reasons but the following three are the most important.

Firstly, there is the soil. Rainforest is generally found on deep loamy soils which, in Australia, are mostly formed from volcanic (basaltic) rocks and therefore rich in nutrients. In south-eastern Australia, though the rainfall goes as high as 150" in some years, rainforest will not grow because the soils are shallow, sandy, lateritic and formed from sedimentary rocks of low nutrient status. A case in point is the Barren lands Faunal Reserve in New South Wales which gets about 100" p.a. and is nearly always shrouded in mist. But because the soils are formed from sandstones, it can only support a swampy heath which is full of Bristle birds, Emu Wrens and Ground Parrots.

Secondly, there is the annual distribution of rainfall. Much of Northern Australia gets over 50" p.a. but nearly all of this falls in two or three months at the time of the monsoons. The rest of the year is dry and dusty and it would be obviously begging the question to expect rainforest to thrive under these conditions. The point I want to emphasise here is that it is a humid environment rather than rain itself that supports rainforest. Perhaps the most tangible proof of this you will have noticed yourself when walking about in the field. When you are in eucalypt savannah country you are always conscious of the sun, its strength, and general lack of cloud. But in rainforest country, at almost any time of the year, you will notice plenty of cloud about and that even on a fine day, the sun is continually going under and coming out of cloud.

The third reason is an historical one - why is there no rainforest in parts of south-west Australia which get over 50" p.a. and have a cool humid climate? This leads to a consideration of the origin and migration of rainforest on the Australian continent and of climatic influences in ages

## RAINFORESTS — (Continued)

long past. Now that I have summarised the present day environment features which control rainforest distribution in Australia, we can proceed to a discussion about where the Australian rainforest originally came from.

By way of background, I first want to briefly recapitulate on the evolution of plant life on earth. The first living organisms came into being between 500 and 2000 million years ago. They were small unicellular or colonial aquatic forms of Algae that we still see today in the creeks and sea. But after about 500 million years ago, they began to diversify and adapt to life on land. First came the mosses and liverworts; they gave rise to forms like *Psilotum* which some of you may know; these psilophytes then gave rise to the ferns and coniferous trees that we know today; in their turn the ferns gave rise to the cycads which still survive today in southern America, Australia, and southern Africa; and finally, about 150 million years ago, the cycads or cycad-like plants apparently gave rise to Angiosperms or flowering plants that completely dominate the vegetation on earth today.

The fossil record indicates that the flowering plants evolved and established themselves quite quickly. Fossil evidence shows that many plant genera we know today were living at least 100 million years ago.

Work on fossils has shown that soon after the rise of the flowering plants, about 100 million years ago, two main types of vegetation covered the Australian land mass. The first was a hard-leaved vegetation whose principle components were various species of *Proteaceae* such as *Banksia* and *Hakea*, the heaths (*Epacridaceae*) and small myrtaceous plants such as *Leptospermum*, and *Melaleuca*. *Eucalyptus* was also prominent. This flora has since come to be regarded as the typical Australian vegetation - and at that time occurred largely over the western half of the continent.

Over the whole eastern half of the continent was a different flora, dominated in particular by the Antarctic Beech (*Nothofagus*) and conifers of the *Podocarpus* type, and there now seems little doubt that it was temperate rainforest as we know it today. Hence it can be deduced that the climate over most of Australia at that time must have been cool and moist. There was little or no arid centre.

Since that time, the Australian climate appears to have become increasingly warmer and drier, with minor variations, up until present day conditions. With it, the temperate rainforest retreated east until it now hangs on in isolated pockets along the southern Great Dividing Range and Tasmania. The drier conditions and retreating rainforest brought the concomitant expansion of the eucalypt-*Proteaceous* flora that so dominates the Australian scene today. Now you can see why there is no rainforest in south-west Australia — it never got there in the first place.

There is one final point here. In these halcyon days of 150 million years ago, the southern hemisphere continental masses of Africa, South America, Australia, and Antarctica lay very close together and perhaps touched in places. At the same time they were separated from the northern hemisphere land masses by several seas circling the globe just above what is now the equator. As a result, they formed a plant geographic zone all of their own and their closeness allowed the vegetation to mix to and fro on them. You can imagine this position of the continents on the globe quite easily. Africa fitted close to the western part of Australia and South America fitted on to the eastern part. These continental masses soon after drifted gradually away from each other to their present day positions, but the floristic relationships still remain. Thus in South Africa you find proteaceous plants and everlastings similar to those that you find in Western Australia, while Antarctic Beech and *Podocarpus*-pine rainforests are found right from the high mountains of New Guinea down the eastern mountains of Australia, right through New Zealand to the southern Andes of South America.



## RAINFORESTS — (Continued)

So much for the origin of temperate rainforest in Australia. What about the tropical and sub-tropical types? By contrast, their occurrence in Australia seems much more recent and they have apparently come not from the south in the Antarctic area but from the north, from Malaysia.

The Malaysian area has for a long time been about the equator and had a torrid climate. Tropical rainforests have possibly been growing there for nearly 100 million years, at a time when Australia was still pretty cool and still associated with the other continents of Africa and America in southern waters. Since then Australia has drifted northwards towards the equator, and as I mentioned earlier, its climate has become both warmer and drier. From about ten million years ago, and particularly during the last Ice Ages, there have been considerable changes in sea level with falls of up to 2-300 feet in the shallow northern Australian waters and land connections have been exposed north to New Guinea and north-west to the Malaysian archipelago. This has apparently permitted the immigration and mixing of tropical type rainforests from these regions with those of Australia. Though Australia was warm enough, its aridness sifted out much of these forests. The north-east corner was however sufficiently humid, and it is from here that the Malaysian influence appears to have moved down the eastern seaboard to the south of Sydney.

In conclusion, I want to say a few words about the conservation of rainforest in Australia.

Compared with all other vegetation types in Australia, rainforest is both richest in species and most confined in distribution - two factors which alone should be sufficient argument for its preservation.

Rainforest usually grows on rich soil and contains valuable timber - which are two reasons why it is often extravagantly exploited.

And there are two more reasons why I, as a botanist, feel that it is tremendously important to preserve whatever stocks of rainforest that we can.

The first is that rainforest comprises such a vast complex of plant and animal forms that it has never been thoroughly investigated for future foods, drugs, and other products that will benefit mankind. I think it is a fair prediction that as man gets older and wiser and more dependant on an increasing variety of natural products for his living, rainforest, if judiciously conserved and utilised, will provide an increasingly large proportion of them.

The second reason is that Australian rainforest comprises an intriguing admixture of Antarctic and Malaysian vegetation types and a fantastic array of evolutionary curiosities and connecting links found nowhere else in the world.

For example, there is *Psilotum* which grows out of rocks or tree trunks and consists of hanging strap-like stems, and the leafy *Tmesipteris* which grows on the trunks of treeferns, which link the liver worts and mosses with true ferns. Then there is the peculiar small cycad, *Bowenia*, which is the only cycad in the world with compoundly pinnate leaves; there is also *Gnetum*, an inconspicuous tree or climber in the forest, which seems to be a dead end in the line of evolution of coniferous trees; and finally there is the shrubby white-flowered *Drimys*, the most primitive flowering plant in the world, whose ovaries show quite clearly how the ovary of all flowering plants evolved from a spore-bearing fern frond. And so I could go on naming a host of interesting plants for which the Australian rainforest serves as a refuge.

The moves and acts to preserve rainforests or any natural area for that matter, seems to fall into the hands of Natural History Societies and the realm of politics. In all this, I have but one warning. In my travels about Australia, I have noticed that field naturalists tend to become interested particularly in small groups of plants and animals, such as orchids and shells

**RAINFORESTS — (Continued)**

at the expense of others - and their outlook on nature conservation becomes biased accordingly. Now this is wrong. In nature, every one organism is dependent on another for its existence and survival, so that when we talk about nature preservation we should consider first the whole biotic community rather than any part or parcel of it.

To sum up, when you are dealing with nature preservation, approach your problems from Nature's point of view.

Published from an informal address given by R. SCHODDE, Canberra to the North Queensland Naturalist' Club in August, 1963.

—O-O-O—

**BOOK REVIEW**

**AUSTRALIAN FINCHES**, by Klaus Immelmann.

Angus and Robertson, Sydney. Price 47/6d.

In 1959-60 Dr. Klaus Immelmann, a brilliant young German-born ornithologist, came to study Australian finches under a grant from the German Federal Research Organisation, and so impressed his colleagues in the field that he was invited to undertake the work of revising Neville Cayley's "Australian Finches" which has been out of print for many years. The same colour plates are used as in the original, but there are also many photographs and all the text has been completely rewritten. This very comprehensive study of finches will interest all bird lovers and ornithologists and by the very great wealth of information will teach them much of these interesting little birds of the bush and town.

—O-O-O—

**TOURISTS AND WILD LIFE AT GREEN ISLAND**

Between October 4 - 9, 1965, I was staying on Green Island and was interested to see that the Torres Strait Pigeon — *Myristicivora spilorrhoa* — was in some strength on the island. I estimated the population to be between 500 and 1000 birds. S. R. White (North Queensland Birds, Emu, Vol. 46, pp. 81-122) describes how once the birds were in great numbers on the island but by 1902 shooters had reduced the numbers to only a few pairs (E. M. Cornwall, Emu, Vol. 2, p. 175). White found the bird re-established in 1944. He comments: 'It will be interesting to see whether they are able to re-establish themselves in the face of an increasing tourist traffic, although the island is now a sanctuary. There seems little doubt that the birds owe their survival in these parts to the action taken in declaring as sanctuaries their breeding haunts among the reef islands.'

It is pleasing to note that the increasing numbers of tourists have not stopped the birds from breeding on the island. Mr. N. Monkman informed me that they nest regularly though at the time of my visit, although courting was in full swing, I found no occupied nests. Some birds remained on the island all day and their deep cooing made a pleasing murmur in the forest. Most left an hour or so after sunrise and returned a few hours before sunset. Parties numbered from a few birds to about 30 and the flight was swift and straight. In the tree tops the birds were noisy and nervous. Some courting display was observed with a clicking noise being made, and a quick shivering of the folded wings.

The closeness of Green Island to the City of Cairns no doubt also led to the extermination of nesting Green Turtles. To re-establish these it would seem necessary to bring turtle eggs back to the island. The babies when hatching probably home to the island they see at birth.

The most important fact is that tourist exploitation even at the high



## TOURISTS AND WILD LIFE AT GREEN ISLAND — (Continued)

density of Green Island need not affect the wild life. The reefs had a large amount of interesting life on them and the island itself seemed largely unspoiled. The very presence of tourists stops the kind of vandalism and illegal killing which still takes place in sanctuaries where there are no wardens.

Vincent Serventy.

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—O-O-O—

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ROBBERY IN THE GULLY

We are apt to give the actions of birds and animals a human interpretation; whether it is correct to do so in all cases is doubtful, but I do think that when they appear to us to play practical jokes or otherwise engage in mirthful antic, they are indulging in a very human way. Have you ever seen a child with an icecream, teasing another who has none? Well, that is what this tale is about, but with reptile and birds instead of children as the actors.

I was camped on the bank of a creek in Mossman a couple of years ago, and one morning I heard the plaintive croaking of a frog coming from the creek bed. I thought a snake was getting its breakfast, so I crept through the fringe of scrub on the creek bank to investigate.

The creek was but a trickle but there were a few fair sized holes along it. The one I appeared above was about twenty feet long by six feet wide and possibly 3 ft. deep. The bank dropped sheer from under my feet to the water, but on the far side a beach of water-worn stone and gravel ran back to the bank which sloped gently up to the canefields at the top.

Lying on the beach with its body half in the water was a 3 ft. long water dragon, and a few yards away a black butcher bird held a still croaking frog in its beak. As I watched, the lizard started to creep over the gravel to the butcher bird which remained apparently oblivious of the fact, for it continued to bash the frog on a stone.

Suddenly the lizard made a rush to seize the prize, but the butcher bird merely flitted over its head, and when the lizard turned around the butcher bird was already putting an end to the frog's last feeble cries of anguish with a few more hearty thumps on a handy stone.

Again the dragon crept up on the tempting meal, and again the bird with a hop and a flutter of wings was a few yards away. By now the frog had croaked its last and the powerful bill started to tear the prey apart.

The butcher bird pulled a piece of intestine out of the frog and made a great display with it. Eyes half shut and head thrown back, it played with the portion in its beak before finally swallowing it.

I could see the dragon getting set for another rush, but the butcher bird must have wanted to prolong the torture, for it started to clean its bill. The lizard was by now barely 5 ft. away, and the frog lying on the gravel a few inches from the feet of the bird that appeared engrossed in carefully wiping its bill — when disaster struck.

Without a sound a kookaburra glided down from a branch where it had been biding its time. It was only a couple of feet above the beach when it passed over the lizard, who nearly died of heart failure and dived into the creek; the butcher bird was almost knocked flat as the 'burra picked up the frog on the wing — its breast hitting the ground with a thump as it did so.

As the kookaburra disappeared down the creek, the dragon's head appeared out of the water looking around in all directions. The butcher bird was still sitting where he had jumped to when the feathered thunderbolt had flashed past, disbelief showing in every ruffled feather; whilst from down the creek came a derisive chuckling as the villain of the piece flew off to some secluded perch there to eat its ill-gotten gains in comfort.

Ben Constable.

## EDITORIAL

Since publication of our last Journal the Club's Annual Meeting has been held, most office bearers being re-elected with enthusiasm. In his address, the President spoke appreciatively of the support given him by all officers and members throughout the year. He also noted the gratifying increase in both town and country membership. Finances of the Club appear to maintain a modest average through all the fluctuations, being "up" as subscriptions come in (could your subscription still be due?) and "down" as the Journal goes out. Owing to an increase in printing costs, it has been decided that the Journal must be reduced from 12 to 8 pages overall. (However, please do send along your Natural History notes and articles to fill these pages, for the information and the enjoyment of us all.) The well-renowned Bunyip, our Club's entry in the Fun in the Sun procession, fully justified himself by catching the public eye, and was even filmed for a T.V. programme by Mr. Vincent Serventy, the eminent West Australian naturalist and photographer.

In recent months we have enjoyed visits from Mr. Serventy and Mr. Harold Pollock, both of whose outstanding nature films attracted many members of the public as well as Club members. Besides being such delightful entertainment, the films and lectures presented by these experienced field naturalists stressed again and again the urgency of the need for more and better conservation of our dwindling wild life and wild places; for basic planning in both urban and rural land use to permit native flora and fauna to live along with people, and for the education of people to realise that this is in fact desirable and possible.

Our Club is very conscious of these needs. Educating the youngsters is a long range scheme, but several members conducted groups of Cubs along the "nature trails" at Hesp Park on our Field Day there. Some members contributed a word or two to the recent anti-fire campaign in the "Cairns Post", and we shall do our best to support the Committee appointed at the resultant Public Meeting to prevent a recurrence of such widespread fires as have devastated the North this year. Our final Field Day for the year was a tree planting expedition with Mrs. Betty Davies on part of the fire-razed area at Edge Hill.

A perhaps noteworthy little sidelight on this fire was the number of local residents who afterwards took the opportunity of clear ground to climb the hill. Could it be that the mildly well-intentioned general public would welcome "nature trails" to points of interest in their own localities? Many school grounds adjoin an area of bush. What opportunities these might offer!

Have you a voice on any P. & C. Committee?

With this thought for the New Year, we extend to all best wishes for a joyful Christmas season.

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**Anecdote with a moral:** A few years ago the jam-making team at the Edge Hill school was given a quantity of Native Cherries (*Antidecimo-dallachyanum*) which make delicious jelly. The following year they asked for more, but none were available. Mentioning the cherries in casual conversation recently, Mr. S. E. Stephens remarked, "There used to be a good tree near the Edge Hill school, but I think they cut it out when they extended the playground".



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"Each Author is responsible for the opinions and facts expressed in his  
or her article".

**Club Officers — September 30, 1965 to September 30, 1966****President : A. J. CASSELS, Esq.****Hon. Secretary : Mrs. M. L. CASSELS.      Hon. Treasurer : Mrs. M. MEARS.****Editor : Miss J. MORRIS.**

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**CLUB HANDBOOKS**

Check List of North Queensland Orchids, 1964 (in course of Revision).

Check List of North Queensland Ferns ..... 10c

Edible Plants in North Queensland ..... 20c

List of Birds Occuring in North Queensland ..... 20c

Marketable Fish of the Cairns Area ..... 10c

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**JERBOA RATS AND MICE**

I wonder how many bush people have seen a jerboa rat or a jerboa mouse, or even know of their existence here ?

The one and only jerboa mouse that I ever saw was at Quaamaa, South Coast, N.S.W. It was on our dairy farm there, when I was 4 years old. I was standing near an old decayed tree stump, when, from a hole in the ground where a root had rotted away, the image of a fairy-like kangaroo emerged. After taking five or six hops it sat up and sniffed the air suspiciously. I had frozen into immobility, so, after a careful scouting, it must have concluded that I was harmless.

When, later, I told some of my own age group about the little creature no bigger than a mouse that hopped like a kangaroo, I was laughed to scorn.

"Garn", said one, "there ain't any animal like that!"

Many years later, here at Ingleburn, I came in contact with the jerboa rat. In this case also, it was just a brief glimpse on my part and a hasty retreat on the part of the rats.

On one side of the fowl run at the bottom of our block, I built a small fowl house and paved the floor with bricks to raise it above water level during heavy rain. After a time I noticed that tunnels had been excavated under the bricks and in some cases extended outside the shed into the main fowl run. I could follow the course of the tunnels because holes to the surface had been made at intervals between the bricks and outside where they extended into the yard. These were evidently made for ventilation or observation, perhaps both. Looking down into them I often caught glimpses of shadowy forms and gleaming eyes.

Going down one evening later than usual, in bright moonlight, to shut the fowl-house door, I came upon a group of about six of these rats. They were on the short grass under the clothes-line but were the next instant hurtling in all directions, in leaps easily three feet high and much farther along the ground.

Not long after this happened we had a heavy flood, the water rose above the bricks, and these interesting creatures were not seen around here any more.

V. C. JAGGERS.



# LAPORTEA, THE STINGING TREES

R. G. GILLIS and A. S. WRIGHT

(Contribution from Australian Defence Scientific Service, Department of Supply, Defence Standards Laboratories, Maribyrnong, Victoria.)

The genus *Laportea* has a long history and an unenviable reputation as one of the worst of the *Urticaceae*, a family containing many stinging plants. Generally three Australian species are listed: *L. gigas*, the giant stinging-tree which can grow to more than 100 feet in suitable positions; *L. photiniphylla*, the shiny-leaf stinging tree not so tall as *L. gigas*; and *L. moroides*, "Gympie bush". (Fig. 1) a tall shrub with leaves generally having more "hairs" than the other species; it has the reputation of being the worst stinger in the family. Everist (1) also distinguishes *L. cordifolia*, the "stinging bush". There are related species in other countries. Ito (2) refers to *L. pterostigma* which is found in South Formosa and has the local name "chiao-jeu-kou", which he translates as "man-biting-dog". He also mentions *L. crenulata* which is found in Eastern India. Keele and Armstrong record a fatal stinging by *L. condata* in New Guinea, and another fatal stinging by the related *Urtica ferox* (Maori name "onga onga") occurred in North Island, New Zealand at Christmas 1961, when a youth died after being stung while pig shooting at night near Dannevirke.



FIG. 1 — *Laportea moroides* — Iron Range, N.Q.



A serious accident happened in June 1961 in the Blue Mountains west of Sydney, N.S.W. (3). Mr. Bernard Peach, an experienced bushwalker, stumbled through a patch of *Laportea* in poor visibility while coming down Guouogang Pit, a steep ravine on the side of Mt. Guouogang. He was seriously disabled and unable to proceed, but was easily found by a search party; as a good bushwalker should, he had kept to his planned route which others knew.

Mr. Peach reported that the leaves which stung him were purple. This aroused some curiosity, and a party returned to the spot to investigate. It turned out that Guouogang Pit contains a dense pocket of rain forest and the sting was indeed caused by second growth *L. gigas* which had a fungus on its leaves that caused the unusual colour. Specimens were identified at the Royal Botanic Gardens, Sydney, by Mr. Anderson and his staff.

Subsequent investigation showed that *Laportea* is not uncommon in north-east-facing gullies in the mountains of New South Wales. There is a patch of *L. gigas* at Burning Palms in the National Park south of Sydney, and another at Mt. Keira near Wollongong. There was once a good specimen in the Sydney Botanic Gardens. It was reluctantly removed after a lot of trouble with schoolboys.

In all species the leaves are covered with stiff spines or 'hairs'. These are of two types, one short and stout and the other with a bulb on the base and a long hollow shaft (Fig. 2). The tip is closed off and the bulb contains the active material in solution. When it contacts the skin the tip is broken

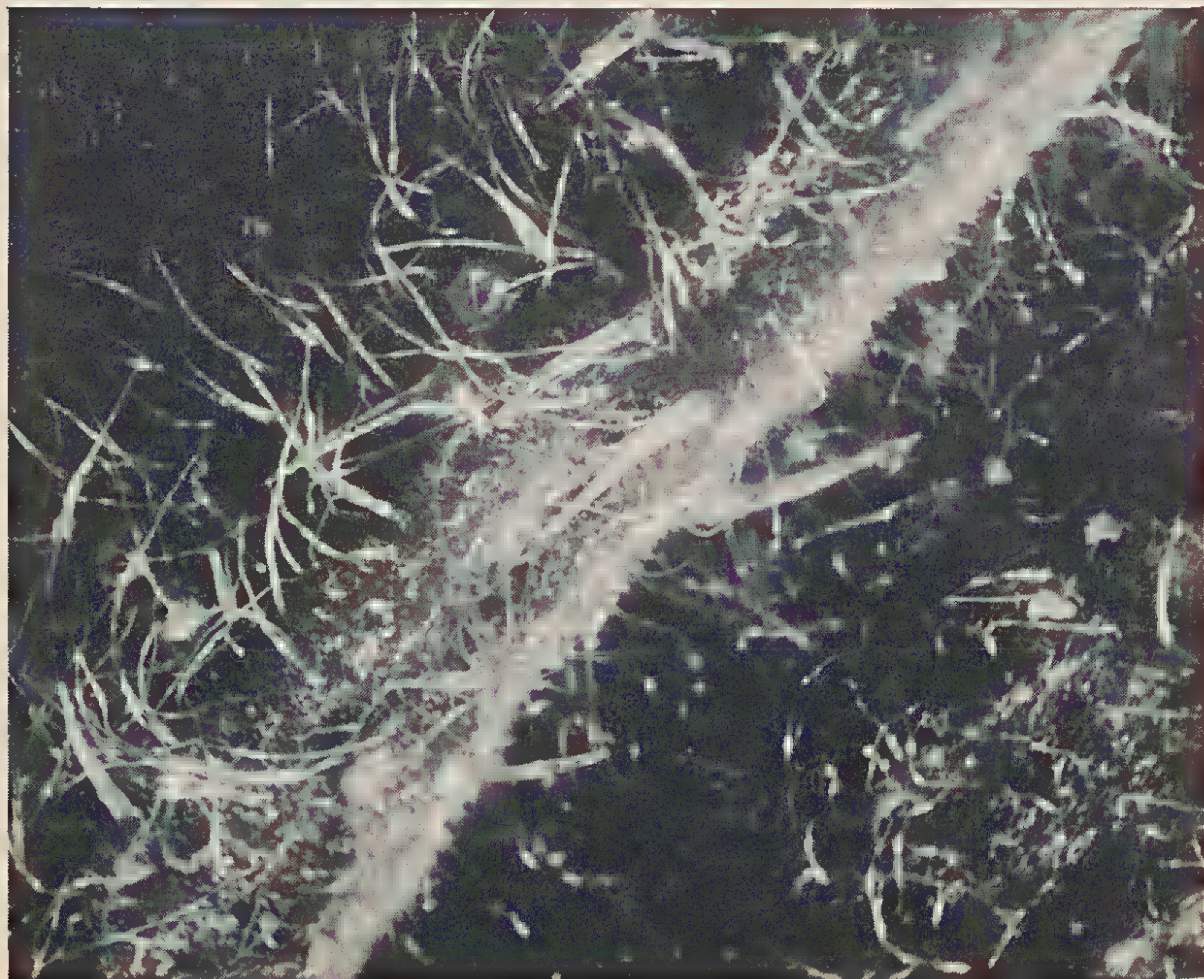


FIG. 2 — Close up of "hairs" on *L. gigas*.



and becomes effectively a hypodermic needle ready to perform a subcutaneous injection. The spines are amorphous silica, and this has been confirmed at D.S.L. by chemical analysis and X-ray diffraction.

The active principle causing the sting is frequently stated to be formic acid. This assertion is based on the work of Petrie (4) who demonstrated the presence of both the free acid and its salts. It is unlikely that the formic acid could produce so severe or so prolonged a pain on subcutaneous injection. Dry specimens of *Laportea* in the Brisbane Herbarium which could hardly now contain formic acid, are still active although 60 years old. Petrie worked on whole leaves, and because he overlooked the presence of nitrates, his material balances were misleading and his estimates of formic and acetic acids are unreliable.

Biochemists working on the problem have demonstrated by biological and pharmacological methods the presence of substances with activities like those of acetylcholine, histamine and/or 5-hydroxytryptamine. These three substances all cause intense pain, swelling and inflammation on subcutaneous injection, and are reported to be present in many insect stings (5). Using biological techniques, Lindigkeit and Jung (6) and Robertson and Macfarlane (7) have shown the presence in *Laportes* of substances having all three kinds of activity. This is in general agreement with the work of Collier and Cheshire on *Urtica dioica* (8), of Emmelin and Feldberg on *U. urens* (9) and of Pilgrim on *U. ferox* (10).

However both Lindigkeit and Jung (6) and Robertson and Macfarlane (7) consider that the real stinging principle is an unidentified material. This they have established by either blocking the effects of the acetylcholine and histamine or by removing them from hair extracts. The active agent does not appear to be an enzyme, glucoside, protein or alkaloid. It has a molecular weight of 1000 or more, is soluble in ether, and is stable to boiling water for 10 minutes but boiling in hydrochloric acid for one hour abolishes its activity. Robertson and Macfarlane suggest that it could be a polysaccharide but this has not been confirmed in any way.

At Defence Standards Laboratories, our interest in the problem was first kindled by the Australian Army authorities in Queensland, and later by the North Queensland Logging Association. We have spent much time trying to confirm the presence of acetylcholine, histamine or hydroxytryptamine by purely chemical and non-biological methods. Our results so far indicate that the active constituents are not precisely these compounds, but could be related to them. In any case, they are low molecular weight substances, non-volatile and reasonably stable to heat.

One previously unreported observation we have made is that the leaves and leaf stems contain nitrate, which was isolated and identified as potassium nitrate. The content varies according to the soil type and season, but as much as 0.7 per cent has been found. *Laportea* leaves would therefore be toxic to stock (if they could eat them without going mad with pain from the sting) because nitrate is reduced to nitrite in the rumen and causes methaemoglobinaemia. In this way nitrate-containing weeds have often caused havoc with sheep.

The literature contains an extensive list of suggested treatments for *Laportea* sting, none of which seems to have any scientific basis. Suggestions range from rubbing on the sap from directly beneath *Laportea* bark or the juice of cunjevoi (*Alocasia macrorrhiza*), to covering the sting area with sticking plaster and ripping it off again. This last has some justification as a means of removing broken spines from the skin — they undoubtedly add to the irritation. Regrettably, no really satisfactory treatment can be recommended at present, either scientific or empiric.

There are several points of interest in the literature which merit further investigation. Ito (2) quotes a passage from the "Gardeners' Chronicle" which asserts that stinging trees give warning of their presence by a disagreeable odour. This has not been our experience but deserves further ex-

amination. The dried leaves when powdered have a strong sternutatory (sneeze-producing) effect.

The chemists at Defence Standards Laboratories who have been working on *Laportea* and related problems intend to continue their studies. It is hoped that by combining some of the newer techniques for separating very small quantities of pure compounds with a recent method of assaying pain-production (11), a successful identification of the active constituents can be made.

This paper is published by permission of the Chief Scientist, Australian Defence Scientific Service, Department of Supply, Melbourne, Victoria, Australia.

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#### BUDGERIGAR SURVEY.

In connection with a research project investigating adaption of birds to the desert environment, I am making a survey of nomadic behaviour of the Budgerigar.

I would like to ask the help of any member who has personal records or knows of literature records of either — (a) breeding congregations of these birds, i.e., more or less high density breeding associations surrounded mainly by areas of little or no breeding, or (b) large non-breeding flocks as occasionally seen at waterholes, in flight, etc.

I am aware of the time and effort required to search through personal records, but please do not hesitate to write, no matter how insignificant your information may seem. Each item is important in itself, and the sum total of many records may give clearer understanding of the pattern of movement as a whole in this species.

ERIC LINDGREN, Dept. of Zoology, University of W.A., Nedlands, W.A.



#### AUSTRALIA AND NEW ZEALAND ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The 39th Congress of ANZAAS will be held during the period of the 16th - 20th January, 1967. The host Institution will be the University of Melbourne. For any further information, write to Mr. L. Mann, ANZAAS, C/- University of Melbourne, Parkville, N.2., Victoria.



## FLECKER HERBARIUM APPEAL

As you may know, the North Queensland Naturalists' Club was founded in Cairns in 1932 by the late Doctor Hugo Flecker, a prominent radiologist in North Queensland, and an eminent naturalist.

Dr. Flecker continued as President of the Club until his death, and under his guidance contact was established and maintained with many similar organisations in many countries throughout the world.

However his greatest achievement for the Club was the establishment of an Herbarium, now known as the Flecker Herbarium. This fine botanical record of North Queensland flora, built up by the Doctor and his associates, contains over fourteen thousand classified specimens. The value to naturalists of this world-known collection will be readily recognised.

Since Dr. Flecker's death the Herbarium has been maintained by our members but at present it lacks a qualified custodian. A Queensland botanist, Mr. Leonard Brass, a member of the Advisory Board of the Archbold Expeditions of the American Museum of Natural History, plans to return to Australia in June of this year when he will live in Cairns and take charge of, and perhaps add to, the Flecker Herbarium.

We are, however, faced with a problem. The Herbarium is at present housed in portion of a temporary wartime building, the property of the Cairns Harbour Board. Impending development plans for the site on which the building stands envisage its early demolition. Therefore we must acquire new premises to house the Herbarium specimens and records.

We are endeavouring to acquire a small area of ground as a special lease at a low rental and to purchase for removal to the site, or to build, a small building adequate for our present needs.

Unfortunately we have insufficient funds to finance this proposal.

Our intention is to seek financial support from business houses (mostly old established firms) in Cairns and other North Queensland towns for what is, in effect, a project to preserve a valuable asset to the area. Our initial financial requirement is estimated as two thousand Australian dollars (£1,000 Australian.)

We take the liberty of also appealing to the many kindred organizations and other institutions who receive this journal, and who are in a position to do so, to assist us in this very worthwhile project — the preservation of the valuable material contained within the Flecker Herbarium. Your help would be greatly appreciated.

Contributions, which will be acknowledged in future issues of the North Queensland Naturalist, should be forwarded to the Treasurer, North Queensland Naturalists' Club, Box 991. P.O., Cairns, Queensland, Australia and marked 'Herbarium Building Fund'.

A. J. CASSELS, President.

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### BOOK REVIEW.

**AUSTRALIAN NATURE TRAIL**, by Vincent Serventy. Georgian House.

In America visitors to national parks have specially marked trails on which to walk. Along these are informative labels which tell something of the animals, plants and other features of the area. Occasionally only numbers are used and the visitor is given a booklet at the beginning of the trail which has the information printed against the appropriate numbers.

Vincent Serventy's "Australian Nature Trail" is a similar guide. Starting from the sea and then moving to the bush and the desert, it describes the highlights of the animals and plants of these regions. Black and white illustrations amplify the text.

The chapters have been chosen from some of the outstanding natural history features seen by Vincent Serventy in over twenty years of study in various parts of Australia.

# THE GROUND HORNET

When the Wet Season sets in up in Cape York Peninsula, a thick-set Black Hornet digs a tunnel in the ground at an angle of 45 degrees. The earth is scratched out and, when the caterpillar has been put in and the egg deposited, the earth is scratched back in again.

There is also a long thin black-red ground Hornet, native of the Batavia River, that works differently. This one sinks a vertical shaft. First of all it selects a spot, then it picks up a few small pebbles, flies out a few inches and drops them out of the way. Then the sinking commences and at short quick intervals it flies out and showers the dirt about six inches from the hole. This hole is put down three quarters of an inch and big enough to put a lead pencil down it. From there, there is a narrow waist put in, just large enough for the Hornet to sink on down to more than an inch; a round chamber is dug down under. The hole is quite vertical and all dirt is carried and scattered as the Hornet is on the wing.

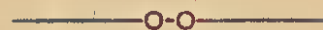
Digging completed, the Hornet hunts around, selects a small pebble and drops it down into the hole to fit nicely in the narrow waist. It then flies onto a dry twig and has a great clean-up.

Away it goes zig-zagging over the green grass and leaves till a nice sized caterpillar is sighted. Immediately the caterpillar drops down from the blade of grass or leaf onto the ground; it has smelt danger. But the Hornet is too quick. It drops down on it and puts in its sting and the caterpillar ceases to wriggle.

Now the hard work begins. The caterpillar is heavier than the hornet. The hornet straddles its kill and snigs and carries it to the nearest tree, takes it up a few feet and planes down, carrying the kill to the foot of the next tree or stump. That goes on until it is close to home, when it snigs the carcass to the top of the hole. It is all bustle now. It goes down, picks the pebble out of the waist, flies out and dumps it. Then the caterpillar is put on the brink of the hole, the hornet goes down into the chamber, turns, comes up head first and snigs the carcass down.

A few minutes go by. Then it comes up, puts another small pebble in the waist of the hole, drops in several smaller pebbles, and puts a large flat pebble on top, then a few showers of earth and the job is completed. The hornet then flies right away.

STANLEY H. BOYD.



## ORCHID CHECK LIST.

Our latest check list of North Queensland Orchids, revised by Mr. A. Dockrill, is now ready for the printers. Place your order now.



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A few weeks ago a small dragon was brought in to one of our members. It has since been identified as a Boyd's Forest Dragon — quite a rare species. The dragon was found in scrub near Babinda.













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